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THE COMMONWEALTH OF LEARNING

PERSPECTIVES ON
DISTANCE EDUCATION

Telecentres:
Case studies
and key issues

Management | Operations | Applications | Evaluation

*Colin Latchem and
David Walker, Editors*

Published by
The Commonwealth of Learning, Vancouver, 2001

THE COMMONWEALTH OF LEARNING

COL is an intergovernmental organisation created by Commonwealth Heads of Government to encourage the development and sharing of open learning and distance education knowledge, resources and technologies.

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(Management | Operations | Applications | Evaluation)

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THE COMMONWEALTH OF LEARNING

Suite 600

Telephone: 604 775 8200

1285 West Broadway

Fax: 604 775 8210

Vancouver, British Columbia

Web: www.col.org

Canada V6H 3X8

Email: info@col.org



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PREFACE

Information communication technologies (ICTs) are fast becoming essential tools in the delivery of information, knowledge and education all over the world. Their application among developing Commonwealth countries is, although slow, expected to increase as the costs of appliances and telephony decrease. Anticipating this increase and mindful that some valuable lessons have been learnt about the role of ICT-based telecentres in supporting educational and community development in both rich and poor countries, The Commonwealth of Learning decided to assemble in a single volume 14 case studies, five chapters summarising the key issues and an appendix of valuable print and online resources on the subject within its *Perspectives in Distance Education* series.

This is the first book to thus examine developments in this field. The eclectic collection of case studies provided by practitioners and observers of telecentre development offers many useful insights into the ways in which these centres can be designed to serve the educational, socio-economic and communications needs of particular communities and how they can be accommodated, managed and used to good effect. The stories told by these contributors cover developed and developing countries, formal and informal education and training, teleworking, government and community information services, and private and public sector participation. They evidence the factors that determine the success or failure of such centres: the appropriateness of the facilities and learning materials; the sustainability of the funding system; participatory governance and management; the creation of an encouraging and welcoming learning environment; and respect for and engagement with local communities and cultures. It is our belief that this book will help anybody interested in the development, management and use of telecentres to make wise decisions on these matters.

The Commonwealth of Learning was very fortunate in attracting the 23 authors to make their valuable contributions to this monograph. We were also fortunate in the choice of our two editors who drew upon their experience and knowledge of educational and technology development to shape and enrich the information contained in this book. To all of these colleagues, I extend our warmest appreciation for work well done.

We hope you, the reader, will derive as much benefit from this book as we have in bringing it together.

Dato' Professor Gajaraj Dhanarajan

*President and Chief Executive Officer
The Commonwealth of Learning*



INTRODUCTION

Colin Latchem

Open learning and educational development consultant

David Walker

The Commonwealth of Learning

Founded in 1987, The Commonwealth of Learning (COL) was inspired by the vision that the peoples of the Commonwealth must and can have access to knowledge, regardless of where they live and whether they are rich or poor. Member Governments have given COL a mandate to encourage the development and sharing of open learning/distance education materials, expertise, technologies and other resources. Working with and providing services to hundreds of institutions throughout the Commonwealth, COL acts as a knowledge provider, catalyst for collaborative action, capacity-builder and trainer.

In the 1990s, COL introduced *Perspectives on Distance Education*, a series featuring case studies to assist policy-makers, managers and practitioners in matters of distance and open learning. The topic of telecentres is seen as a timely addition to this series.

Within many urban, peri-urban, rural and otherwise disadvantaged communities, access to education means access to a better future. In the quest for access, considerable emphasis is placed on the potential of information and communications technologies (ICTs). However, about 90% of the people in the developing world have never used a telephone and about 40% are still without electricity. Given the parlous state of these economies, it is unlikely that ICT-based services will roll out rapidly or reach beyond the main settlements and favoured regions. And even where universal service is achievable, it cannot be assumed that the users are motivated, aware of how to take advantage of the new services or able to afford them.

The July 2000 Okinawa Charter on Global Information Society declared that everyone everywhere should be enabled to participate in the benefits of the global information society, and it pledged to help poorer nations overcome the “digital divide,” and so bypass the barriers to basic education, better healthcare and socio-economic development. One way that such barriers can be overcome is through the creation of public-access centres, variously known as telecentres, telecottages, télécentres, infocentros, telecentros, espaces numérisés, telestugten, community technology centres, phone shops, open learning centres, digital clubhouses, cabinas públicas, people’s economic posts and wartels.

In their most basic form, such centres may be no more than public call offices or telekiosks run by local shopkeepers to provide telephone and fax services. In their more advanced form, they aim to be multipurpose development agencies, offering

info-exchange tailored to suit government and community requirements for tele-education, teletraining, telemedicine, teletrading and telecommerce.

The telecentre movement had its origins in the mid-1980s in Scandinavia. It then spread to Western Europe, Australia and North America, and is now taking root in the former Eastern Bloc countries as well as in Africa, Asia and Latin America. International and national development agencies have recognised the potential of telecentres and are supporting initiatives in various parts of the globe.

This book draws upon the experiences of some of the world's leading experts in telecentres and is designed to help international agencies, governments, non-governmental organisations (NGOs) and educational, training and community organisations establish, extend or improve such networks and centres.

Chapter 1, by **Sonja Oestmann** and **Andrew Dymond**, provides a global overview of ICTs and telecentres, critically examining the experiences to date and pointing to new directions and possibilities for telecentre development.

Chapters 2 – 13 feature case studies of telecentres — their histories, affiliates, functions, costs and funding, accommodation, management and staffing, training provision, publicity, access, technologies, research and evaluation — and the lessons learned from these operations.

Chapter 2, by **Gail Short**, describes the 76-centre Western Australian Telecentre Network, which serves remote and rural communities in Australia's largest state and is now providing a model for similar networks in Tasmania and New South Wales.

Chapter 3, by **Anne Gooley**, details the Queensland Open Learning Network, which in 10 years has grown from a two-centre pilot project to a state government-funded network of 50 Open Learning Centres supporting lifelong learning in regional communities.

In Chapter 4, **Keith Sheppard** describes the Remote Community Service Telecentres of Newfoundland and Labrador, a network providing telemedicine, tele-education, government and business/community services.

In Chapter 5, **Bill Murray**, describes the Hungarian telecottage movement that has resulted in more than 150 telecottages and has plans for about 50 more, plus about 600 satellite offices in support of the government's plans for information access and local economic regeneration.

In Chapter 6, **David Evans** discusses the work of the Warwickshire Rural Enterprise Network (WREN), a telecentre linked to the National Rural Enterprise Centre (NREC) and involved in the establishment of RuralNet.

In Chapter 7, **Peter Benjamin** describes the Gaseleka telecentre, designed to bring the benefits of ICTs and training to a remote community in South Africa's poorest province, one of the few South African centres making a profit and paying a half-decent wage.

Chapter 8 by **Norbert Hartig** explains how the Kitimat Community Skills Centre, the first of such centres to be established in British Columbia, provides technology- and workplace-based training in a remote northwest community.

Chapter 9 by **Sergio Aranda** and **Mary Fontaine** describes the AMIC@'s, 12 pilot telecentres designed to introduce ICTs, democratic processes and lifelong learning into some of the poorest communities in the Municipality of Asunción in Paraguay.

Chapter 10, by **Meddie Mayanja**, describes the Nakaseke Multipurpose Community Telecentre in Uganda, designed to assist the process of reconstruction in an area severely affected by the civil unrest of 1971 – 1986.

In Chapter 11, **Polly Gaster** describes two pilot telecentres in Mozambique that are designed to bring ICTs to the poor and unemployed and to help ensure that Mozambique is a producer of indigenous material, not simply a consumer of content from developed countries.

Chapter 12 by **Leslie Howard** tells the story of the DaimlerChrysler Distance Learning Support Centre in Maseru, Lesotho, started as part of TELISA (the Technology Enhanced Learning Initiative of South Africa), which operates under Technikon South Africa.

Chapter 13 by **Jonnie Akakpo** and **Mary Fontaine** describes three Ghanaian Community Learning Centres run by NGOs and conceived as “learning laboratories” for community development.

The multipurpose community telecentre is still at the concept stage in India, but in Chapter 14, **Santosh Panda** and **Sohanvir Chaudhary** review ICT-based telelearning and teletraining in the sub-continent and offer some insights into introducing such systems into rural communities.

In Chapter 15, **Heather E. Hudson**, drawing on her experience as Coordinator of Evaluation and Learning Systems for the Acacia Programme, discusses the results of using the participatory model of evaluation in telecentres in Mali and Uganda.

In Chapter 16, **Heather E. Hudson** explains the value of formative and summative evaluation and describes the framework and processes needed to inform the planning and operations of telecentres.

In Chapter 17, **Imogen Bertin** discusses the introduction of teleworking into telecottages or telecentres and, citing case studies from the UK and Ireland, the types of work that can be undertaken using information and communications technologies.

In Chapter 18, **Bill Murray**, **Cathy Murray** and **Simon Brooks** describe developments and issues related to providing training for policy-makers, planners, telecentre managers and staff, and telecentre users.

Chapter 19, by **Mike Jensen** and **David Walker**, provides a comprehensive overview of the technology options and issues that need to be considered in planning and developing telecentres.

The book concludes with an appendix listing Web sites and publications about telecentres and ICTs.

We hope that this book will provide a useful guide for policy-makers, planners and managers considering the potential and practicalities of telecentres. We are grateful to all the contributors who shared their experiences, concerns and ideas with such

generosity. Their contributions were invaluable and have helped to make this book a unique record of the achievements being realised through the telecentre movement worldwide — achievements that are enabling these centres to (as the WA Telecentre Network strategic plan says) develop:

From:

An unrecognised resource	The first point of call
Low usage	Significant usage
A narrow focus on technology	A very broad focus on service delivery
A few services	A wide range of services and partnerships
Individual sites	A network
A backroom or add-on service	A centre for collocation of services
A drop-in centre	A service and information centre
Government business done for and to the community	Government services provided in association with the community
Top-down management	Community team management
Followers	Leaders and role models
A community profile	A community, state, national and international profile
An optional service	An essential service



THE CONTRIBUTORS

JONNIE AKAKPO is Resident Advisor in Ghana for the Academy for Educational Development's LearnLink initiative, which has established three pilot Community Learning Centres in the country. Jonnie is responsible for providing technical assistance to the NGOs who manage these centres. He has 15 years' experience in evaluating computer training needs, designing customised programmes and providing systems, networking and system administration support to businesses and institutions. He has also served as an instructor in Computer Studies/Science and Information Technology for the Global Society.

E-mail: jakakpo@yahoo.co.uk

SERGIO ARANDA is the U.S. Academy for Educational Development's LearnLink Resident Advisor in Paraguay, working with the Municipality of Asunción to assist in the AMIC@ initiative and develop partnerships with NGOs, educational institutions and the private sector. Sergio is an informatics engineer with experience in teaching as well as developing multimedia, Web sites and financial and business applications. He is currently creating a national foundation to support the information technology needs of NGOs and preparing new scenarios for the expansion of telecentres throughout the country.

E-mail: saranda@infonet.com.py

PETER BENJAMIN is active in many community ICT projects in South Africa. He established the Vodacom Learning, Information, Networking and Knowledge (LINK) Centre, a programme for conducting education, training and research into social aspects of the Information Society at the University of the Witwatersrand, where he lectures. He has worked with the Universal Service Agency and, together with the International Development Research Centre's Acacia Programme, is monitoring and evaluating telecentres and universal access to telecommunications in South Africa. He has been involved in organising the National IT Forum (1995 – 1997) and the Information Society and Development Conference (ISAD 1996), and in conducting a study into multipurpose community centres (1997 – 1998). He is currently working on a Ph.D. through Aalborg University, Denmark, studying the social impact of telecentres in South Africa.

E-mail: peter@sn.apc.org

IMOGEN BERTIN has been a self-employed teleworker since 1985, working as a graphic designer and technical writer producing paper and online documents. She works from a high-tech office in a farmhouse in South Cork, four miles from the nearest village. Imogen is co-author of the Telework, Telecentre and Telecottages Association's *Teleworking Handbook*, which is now in its third edition. She founded the Irish Association for Teleworkers in 1993 and co-wrote the *Telefutures Report* (1996) as well as Enterprise Ireland's *Guide to E-work* (2000). She also drafted the Irish government's *Code of Practice on e-work* (2000) which has been agreed to by the employers' association and trade union congress. For further information, see www.cork-teleworking.com.

E-mail: imogen@ctc.ie

SIMON BROOKS is employed by the Staffordshire County Council Adult Education Department and has been Director of Training for the UK Telework, Telecottage and Telecentre Association (TCA) since its inception in 1993. This work involves establishing partnerships and liaisons with national training organisations, awarding bodies, training centres and training promoters both in the UK and abroad. A particular focus of this work has been the attention paid to the development of competence-based assessment in the field of teleworking. Simon was responsible for establishing the Moorlands Telecottage in Leek, Staffordshire, in 1989 and retains overall responsibility for this facility's ongoing development.

E-mail: moorlands@fenetre.co.uk

SOHANVIR CHAUDHARY is a professor in the School of Education at Indira Gandhi National Open University (IGNOU) in India. He holds a Ph.D. in educational television from the University of Delhi and a certificate in educational television from BBC-OUPC, UK. In 1995, he was awarded an Association of Commonwealth Universities Fellowship to study the role of new communications technologies in Canada. He has been a researcher for the Indian Space Research Organisation and for *Doordarshan* (Television India) and Joint Director (Media Research and Training) at IGNOU. He has also undertaken work for ADB-COL and UNESCO, and has contributed to various national and international publications.

E-mail: chaudhary38@hotmail.com

ANDREW DYMOND, the founder of Intelecon, is a senior telecommunications economist and market strategist, with more than 25 years' experience in the industry internationally. He holds a B.Sc. in Electronic Engineering and an M.A. in Economics. Andrew built Intelecon's reputation in the field of rural telecommunications and advocates commercially viable rural development. Andrew is also known for his work on designing rural development funds in many countries. He has worked with operators, service providers, manufacturers, financial institutions, international organisations, regulators and governments.

E-mail: adymond@inteleconresearch.com

DAVID EVANS is a freelance trainer and consultant in ICT and open learning. He is currently engaged in developing online learning programmes in banking for Financial Projections Ltd, an international training and consultancy company based in the UK. From 1994 – 1998, he was an elected Director of the British Association for Open Learning. He also helped establish the Birmingham Open Learning Development Unit (currently BOLDU Ltd). David has extensive experience in managing open learning, ICT and staff development. He has worked in Russian and Romanian universities, and he has instigated and led a project funded by the European Union to develop the Black Country Community Network in the UK. David recently completed the Open University M.A. in Open and Distance Learning and participated in the world's first virtual degree-generating ceremony.

E-mail: david@dfe.co.uk

MARY FONTAINE is Communications/Information Specialist in the LearnLink team at the Academy for Educational Development, Washington, DC, and responsible for documenting and distilling field experience of ICT for development, and for managing six telecentre projects in West Africa. Among her many former roles, Mary has been Egyptian Field Office Director for Save the Children/USA, Executive Director of the United States Coalition for Education for All (USCEFA), a member of the Salvation Army World Service Office, Senior Manager of Curriculum Development for the Discovery Channel, Assistant Representative of the Asia Foundation in Bangladesh, consultant to the Ford Foundation in Egypt, an educational materials developer for the

Women's Organisation of Iran, and a writer of English language textbooks at the Iranian Airforce Language School. She has also published extensively.

E-mail: MFFontaine@aol.com

POLLY GASTER is an information and communication specialist and co-ordinator of the Mozambique pilot telecentres project. Born in the UK, she has lived in Mozambique since its independence in 1975, adopting Mozambican nationality. She has been involved in book publishing, film production and the printing industry, and she was formerly head of Mozambique's Public Information Office. Since 1997, she has been in charge of Information Services and Content Development at the Eduardo Mondlane University Informatics Centre.

E-mail: polly@nambu.uem.mz

ANNE GOOLEY is the founder and Chief Executive of the Queensland Open Learning Network, responsible for the organisation's operational structures, local and national recognition and business operations. Anne has acted as a consultant to several national and international organisations establishing open learning systems. She has considerable expertise and experience in uses of interactive communication multimedia for teaching, training and administration and has recently been awarded an Australian National Training Authority Flexible Learning Fellowship to research change management and communication strategies in implementing flexible learning. Anne is deeply committed to meeting the educational and training needs of communities and passionate about encouraging people to engage in lifelong learning.

E-mail: A.Gooley@qoln.net

NORBERT HARTIG is General Manager of the Kitimat Community Skills Centre. Prior to taking up that position, he was Director of Learning Resources, Distance Education and International Education at Northwest Community College, where he also taught History. His career has included experience as a television producer/director with the Government of British Columbia and as a librarian and Director of Media at the University of Durban-Westville in South Africa. He has also researched distance education for the University of Zimbabwe. Norbert is responsible for designing, developing and implementing the Skills Centre's industrial and community education and training programmes and the ICT-based training network for northwest British Columbia.

E-mail: nhartig@kcsc.bc.ca

LESLIE HOWARD has spent much of her working life in education, initially teaching in high schools, where she headed a number of English departments, and later lecturing part-time in Communication at Technikon Witwatersrand in Johannesburg. In 1990 she launched Focus Communications, her own communication consultancy. Her major clients have been in South African higher education and she has written many articles for the South African national press, particularly *The Higher Education Review* during its years of existence, and for the external journals of a number of higher education institutions. She has contributed extensively to *Edge*, the external journal of Technikon South Africa, which has won a number of national awards and one international award for communication excellence. Recently, she has written extensively about the projects of the Centre for Lifelong Learning, a division of Technikon South Africa.

E-mail: fcomm@iafrica.com

HEATHER E. HUDSON is Professor and Director of the Telecommunications Management and Policy Program in the McLaren School of Business at the University of San Francisco. Heather has consulted widely on telecommunications and development, and has planned or evaluated ICT projects in more than 40 countries. In 1998 – 1999, she

was Co-ordinator of Evaluation and Learning Systems for the International Development Research Centre's Acacia Programme, which supports projects and policies that extend access to ICTs in sub-Saharan Africa. She is the author of *Global Connections: International Telecommunications Infrastructure and Policy*, *Communication Satellites: Their Development and Impact*, and *When Telephones Reach the Village*, and co-author of *Rural America in the Information Age* and *Electronic Byways: State Policies for Rural Development through Telecommunications*.

E-mail: hudson@usfca.edu

MIKE JENSEN is an independent consultant who has had experience in 33 countries in Africa over the last 15 years, assisting bilateral and multilateral development agencies to establish information and communications systems. A South African, based in Port St. Johns in the East Cape, Mike sent his first e-mail 20 years ago while studying rural planning and development in Canada. He returned to South Africa to work as a journalist on the *Rand Daily Mail* in Johannesburg and then moved back to Canada in 1985 to co-found the country's national Internet service for NGOs called, coincidentally, The Web. He is currently working on a number of rural connectivity initiatives and telecentre projects. He is a trustee of the African IT Education Trust, was part of the support team on the African Connection Rally last year and was a member of the African Conference of Ministers High Level Working Group which developed the African Information Society Initiative (AISI) in 1996.

E-mail: mikej@sn.apc.org

COLIN LATCHEM has over 35 years of leadership and management experience in open and distance learning, instructional design and staff development. Most of his work has been in the UK and Australia, but he has also worked in Nigeria, South Africa, India, Indonesia, Brunei, Japan, Korea, Taiwan, China, Hong Kong, the Philippines and the South Pacific. Formerly Head of the Teaching Learning Group at Curtin University in Western Australia (WA), Colin was involved in the establishment of the WA Telecentre Network and is a past President of the Open and Distance Learning Association of Australia. He co-edited *Staff Development in Open and Flexible Learning* (Routledge Distance Education Series), which is a course book for the UK Open University master's programme in open learning and is now translated into Chinese, and he is currently co-authoring *Leadership for 21st Century Learning: Global Perspectives from Educational Innovators* (Kogan Page) with Professor Donald Hanna of the University of Wisconsin-Madison.

E-mail: clatchem@iinet.net.au

MEDDIE MAYANJA, a social scientist by profession, is currently the project officer of the Nakaseke Multipurpose Community Telecentre (MCT), a centre serving a Ugandan rural community supported by the Uganda National Commission for UNESCO. He is a member of the ICT Policy Task Force in Uganda and serves on the Telecentre Reference Group. He is also a member of the National Information and Informatics Committee (IIP) of Uganda and is acting as a resource person for further telecentre initiatives in Uganda. Meddie has been involved in the Nakaseke MCT since its inception, being responsible for planning its organisational structure and applications. He has written and presented several papers on the challenges and lessons of promoting universal access in the rural and remote areas of Africa, most notably at the 1999 Building the Information Communication in Africa (BICA) conference in South Africa and at the Global Knowledge (GKII) conference in Malaysia in 2000.

E-mail: ugunesco@swiftuganda.com

BILL MURRAY, Director of Small World Connections (www.smallworldconnections.com), has been involved with a wide range of innovative telework initiatives. He works as an expert evaluator/rapporteur on teleworking projects for the European Commission, has represented the UK on a G8 e-commerce project and acts as an external expert/researcher on teleworking and e-commerce for the International Telecommunications Union (ITU) and the European Telecities Group. Bill has carried out a number of UK national surveys of teleworking and telecentres. He is currently researching the development of telecentre models around the world for an ITU publication and has recently been involved with a British Council-supported Telecentre Manager Training Programme in Hungary. In 1999 he developed and ran some Telecentre Management Workshops for ITU in the Arab States.

E-mail:small_world@compuserve.com

CATHY MURRAY, Director of Small World Connections (SWC) (www.smallworldconnections.com) and a member of the UK Institute of Personnel and Development, has a background in personnel management. In her work with SWC, Cathy has specialised in training. She developed the SWC Teleworker Training Courses and the Telework Open Learning Pack. She is a qualified UK National Vocational Qualification (NVQ) Trainer and Assessor and has taken nearly 100 candidates through the UK teleworking NVQ. She is currently developing training materials for telecentre managers and managers of teleworkers as part of the European Union-funded LocalNet project. She was responsible for the training programme developed for the award-winning Styal Prison Telecentre Project.

E-mail:small_world@compuserve.com

SONJA OESTMANN is a Senior Manager and Partner in Intelecon, with an M.A. in Political Science. Intelecon is an international telecommunications consultancy specialising in emerging markets and developing countries (www.inteleconresearch.com). Since starting her career in the European Commission's Telecommunications Directorate, Sonja has specialised in market analysis, marketing and business strategy, and policy issues related to market liberalisation and universal access. Sonja recently examined telecentre operations around the world and designed a commercially viable operating model for a client.

E-mail: soestmann@inteleconresearch.com

SANTOSH PANDA holds a professorial position at Indira Gandhi National Open University (IGNOU), India, as Director of the Staff Training and Research Institute (STRIDE). He holds an M.Phil. and Ph.D. in education and a certificate in educational television from BBC-OUPC, UK. Santosh has conducted many workshops within and outside India, and has researched, published and presented widely on planning, managing and providing staff development in open and distance education. He previously taught post-graduate education courses at Kurukshetra University and was Director of Research at the Association of Indian Universities. He edits two internationally refereed journals, *Indian Journal of Open Learning* and *Staff and Educational Development International*.

E-mail: pandasantosh@hotmail.com

KEITH SHEPPARD is the President of Collaborative Network Technologies and also the project manager for the Remote Community Services Telecentre (RCTS) project in Newfoundland and Labrador. He is an information technology professional with over 20 years' experience in a variety of operating environments, including IBM mainframe systems, LAN systems, Unix, and Internet and intranet environments. In 1998, he formed Collaborative Network Technologies Inc. (Colabnet) to focus on distance

education, medical informatics, and information technology-based economic development. Since its inception Colabnet has played a major role in the development of a new satellite-based communications system for rural Newfoundland, as well as moving forward with several innovative Java-based software development projects. Keith has a Bachelor of Commerce (Honours) and a Masters in Business Administration.

Email: kshepprd@colabnet.com

GAIL SHORT is an authority on telecentres for socio-economic development and educational access in rural and remote areas. As Senior Research Officer with the WA Office of Higher Education, she commissioned a review to find out how to encourage more secondary-school dropouts and mature adults in regional Western Australia to take up post-secondary education. That report led to the establishment of the 76-centre WA Telecentre Network, which has brought many benefits to outback Western Australia and has served as an exemplar for other Australian and overseas telecentres. Gail subsequently became the Team Leader for the Network. Today, she provides telecentre consultancy services for the International Telecommunications Union and other agencies in the Asia-Pacific region.

E-mail: begash@hotmail.com or gash@attglobal.net

DAVID WALKER is an Education Specialist (Educational Technology/Media) with The Commonwealth of Learning. He is engaged in a wide range of media, technology communications and other projects in Asia, Latin America and the Caribbean, including a major project of his own devising, the COL Media Empowerment (COLME) programme, focusing on such critical areas as basic education and HIV/AIDS. David spent a number of years working on Canadian-funded educational technology projects in China, has taught at primary, secondary and post-secondary levels and holds a B.A. in Chinese Language and Literature from the University of Alberta, and a B.Ed. and M.A. (Educational Technology) from Concordia University (Montréal).

E-mail: dwalker@col.org



CHAPTER 1

TELECENTRES — EXPERIENCES, LESSONS AND TRENDS

*Sonja Oestmann and Andrew C. Dymond
Intelecon Research & Consultancy Ltd.*

INTRODUCTION

Telecentres have been hailed as the solution to development problems around the world because of their ability to provide desperately needed access to information and communication technologies (ICTs) (Gómez and Hunt 1999). A significant number of such centres have been piloted and implemented by various governmental and development agencies across the globe.

Telecentres have considerable potential for narrowing the “digital divide” in remote, rural and otherwise disadvantaged communities. They can be especially useful in helping developing countries and rural areas take advantage of the information economy, access education, government information, healthcare and other services, and develop socially and economically.

Some telecentres and telecentre networks — most often those found in countries where sufficient funds are available — have been highly successful. A number of these feature as case studies in this book. For other centres and networks, however, the experiences have been less than encouraging, especially in developing countries. This may be attributable to a range of factors, such as the fact that many telecentre projects are still at the pilot stage or in their early years of operation. Other potentially problematic issues include financing telecentres and choosing appropriate ownership models, both of which manifest themselves in implementation shortcomings.

This chapter provides a brief introduction to telecentres, critically examines the experiences to date, particularly in developing countries and emerging markets, delineates the key issues, and points to new directions and possibilities for telecentre development. Central elements are a discussion of financing, ownership and operating models, and a consideration of private sector involvement.

TECHNOLOGY TRENDS: A CHALLENGING OPPORTUNITY

The proliferation and use of ICTs presents opportunities and challenges both to the mature service-oriented economies of Europe, Australasia and North America and to developing countries. Current technology and market trends fall into four main categories:

- *Convergence* — Increasingly, information, communications and media technologies are coming together, offering seamless access to a full range of multimedia resources.
- *Internet* — Its proliferation in many aspects of daily life is widespread and it is transforming business through e-commerce.
- *Wireless and satellite* — These new, go-anywhere technologies also promise lower costs.
- *Privatisation and liberalisation* — These are the twin vehicles for accelerating and facilitating technological advance and access to the wide range of options.

Even in advanced economies, there are rural and remote communities that have been left behind in terms of educational and technological equity and access. The technological revolution that is transforming our economies and societies into information economies and information societies meets with many obstacles in developing countries and is in danger of widening the now well-known “digital divide.” Conversely, the technological advances provide the means for “leapfrogging”—that is, the opportunity for developing countries to jump to a new paradigm before problems of delivery have been solved by traditional means, both in technical and economical terms.

Even allowing for the rhetoric and hype about the new technologies, developing countries and rural communities could generally take advantage of the benefits available through the following:

- *The Internet and Web* — the benefits: new and enlarged sources of information and knowledge
- *E-mail and chat rooms* — the benefits: new forms of communication and “virtual organisations”
- *The extraordinary pace of software development* — the benefits: generic and locally produced teaching, training and information material, with enhanced graphics, animation and interaction
- *The lowering of bandwidth costs and emergence of enhanced cable, wireless and satellite systems* — the benefits: greater opportunities for videoconferencing, online learning, etc.
- *Public access schemes* — the benefits: greater assistance to lower income groups and disadvantaged communities

However, realising this potential calls for political will and support, and for solutions to four key obstacles:

- access to technology;
- affordability and financing;
- inappropriate regulatory frameworks; and
- shortage of knowledge and skills to develop and implement ICT-based systems.

THE TELECENTRE CONCEPT

Telecentres may be defined as strategically located facilities providing public access to ICT-based services and applications. They are typically equipped with some combination of:

- telecommunication services such as telephony, fax, e-mail and Internet (via dial-up or ISDN, high-speed telecommunications network);
- office equipment such as computers, CD-ROM, printers and photocopiers;
- multimedia hardware and software, including radio, TV and video; and
- meeting spaces for local business or community use, training and so on.

While facilities and usage vary across telecentres, all reflect the intention to address the issues of access by providing technology, develop human capacity and encourage social and economic development. Depending on the size and extent of the services provided, these centres are usually operated by a manager and a small number of staff who may be part-timers or volunteers.

Originating in Sweden around 1985, telecentres (also known as “telecottages”) experienced fairly rapid growth in Western Europe and other industrialised countries where rural isolation, lack of purchasing power and low-quality telecommunications and information technology facilities were seen to be a hindrance to participation in the information economy. By 1994, there were more than 230 telecentres in Australia, Austria, Canada, Denmark, Finland, Germany, Ireland, Japan, Norway, Sweden, the UK and the USA. The idea then spread and has become adapted to the needs of emerging markets and developing countries. Hungary is the first country in Central Europe to establish a large number of rural telecottages (more than 150).

Telecentres vary a great deal, especially in their size, facilities and services, according to whether they are rural or urban and whether they are located in the developed or developing world. Some provide only basic telecommunications services and are best referred to as “phone shops” or “public call offices” (PCOs). Such countries as Peru, South Africa, Morocco, Senegal, Indonesia, India and Bangladesh have independently developed these, starting in urban or larger rural communities with a low level of private telephone penetration and/or a large enough market for public access businesses to be commercially viable. Well-known examples are Senegal’s Sonatel with about 10,000 PCO franchisees, or approximately 5% of all telephone lines; Indonesia’s 7,000 or so Wartels; the Grameen “phone ladies” in Bangladesh; the PCOs in India (about 10,200 such centres in 1996); the PCOs in South Africa franchised by the mobile operators Vodacom and Mobile Telephone Network (MTN); and MTN in Uganda. By 1998, there were more than 9,000 such centres in Africa alone. These PCOs or phone shops often comprise just a telephone and fax, but more and more are adding personal computers, Internet connection and peripherals. Africa Online, an Internet service provider operating in nine African countries, has offered PCO owners a franchise agreement to provide public access Internet. To date, this has resulted in more than 600 so-called “e-touch centres,” mostly located in urban areas.

Other telecentres have become a vehicle for a wider variety of ICT services and applications, taking advantage of the growing availability and access speed options for Internet service. The advanced concept, as developed and promoted by the International Telecommunications Union (ITU), called Multipurpose Community Telecentres (MCTs), may include facilities such as libraries, training workshops, seminar rooms and office space for local enterprises, and provide services such as videoconferencing,

distance education, training in ICTs, telework, telemedicine, telehealth and even telebanking and e-commerce. Telecentres can also function as community information centres, providing access to databases and receiving and posting information of general interest to local people (e.g., government notices, information on the spread of diseases, weather information, prices of farm products, educational opportunities). Telecentres therefore go beyond mere access to telephony. Their purposes are to:

- expand access to ICT-based services;
- extend the reach of public services such as education, health and social services;
- provide information of general interest to the local community, including government information, and of special interest to specific groups such as farmers, local businesses and non-governmental organisations (NGOs); and
- provide access to infrastructure, technology support and advice for the development of businesses.

Telecentre projects have been initiated in at least 21 developing countries, namely: Suriname, South Africa, India, Mozambique, Uganda, Philippines, Egypt, Ghana, Mali, Bhutan, Benin, Honduras, Tanzania, Mexico, Brazil, Hungary, Estonia, Romania, Haiti, Maldives and Vietnam. Many telecentres are still in the planning or pilot stage.

One of the advantages of telecentres is that they provide a means of delivering public and private services to rural and remote locations without incurring immediate large investments. In fulfilling these goals, they are expected to have a positive impact on the socio-economic development of the communities they serve, helping to:

- develop rural and remote infrastructure;
- provide rural regions with better public services and improved local administration;
- generate employment and foster socio-economic development;
- integrate relatively isolated communities into the national and international information network and thus accelerate exchange of private goods and services;
- transfer expertise in a number of areas, such as agriculture, to and from the community; and
- give local producers access to market information, thus reducing the need for middlemen and increasing rural incomes.

TELECENTRE EXPERIENCE AND EVALUATION

Experience with services, usage and the problems, issues and achievements of telecentres are reviewed in this section, with a particular focus on developing countries and emerging markets.

Evaluation of telecentres in developing countries, especially in terms of socio-economic impact assessment, is scant so far. This can be attributed to the very early stages of most of the projects. However, evaluation frameworks and methodologies are emerging (see Gómez and Hunt 1999).

Evidence of performance in developing countries is also still very limited. It must be borne in mind that cases vary according to the nature of the location, the year of development and the regulatory environment, among other factors. Thus, generalisations can be made only cautiously at this stage. Nevertheless it is possible to observe key trends.

Services and usage

Services provided by telecentres vary according to the degree of development of the country. For example, a summary published by the ITU on MCTs in Ireland indicates that 50% or more of the centres offered access to computers and the Internet, word processing, photocopying, desktop publishing and computer and Internet training (Ernberg 1998). More than 20% offered some Web site development. Telecentres in Ireland are clearly geared towards assisting small business development and providing higher-end information technology equipment. Access to basic telecommunications is not the main objective.

In contrast, centres in developing countries virtually all have basic telecom and office equipment for public use, which represents the primary demand. A recent study (Roman 2000) of eight telecentres established by the Universal Service Agency in South Africa shows that the strongest demand and usage is for the following basic services:

- phone calls and faxes
- photocopying
- printing
- typing services
- bookkeeping for micro-businesses

There is also considerable demand for ICT training which is seen as increasing employment opportunities. However, many telecentres are not yet able to cater effectively to this market. For example, because they do not provide certificated programmes, the courses are of limited use for people looking for employment.

Telecentres need to provide services beyond basic access to telecom and office equipment, which can be (and mostly is) better provided by simpler phone shops. Evidence for this is the increasing number of PCO-type operations in emerging markets and developing countries.

Although telecentres are praised as a crucial development tool and have considerable potential, the data available on rural demand and usage of the Internet in such centres suggest that this is not sufficiently realised. A survey of telecentres supported by the Universal Service Agency (USA) in South Africa found that personal computers and the Internet were severely underutilised (Khumalo 1998). The reasons are thought to be:

- illiteracy in general and computer illiteracy in particular;
- language problems resulting from the fact that the Internet is mostly in English though there are many local languages;
- lack of awareness and culture about the use and benefits of ICT;
- the high cost of Internet connection through long-distance calls due to lack of local points-of-presence (POPs); and
- poor quality telecom connections.

It would also appear that computer training has increased Internet and personal computer usage in South African telecentres only minimally.

Local content

Another major issue that may explain the under-utilisation of the Internet is that there is limited content on the Internet relevant to the needs of rural users in developing countries. More recent telecentre initiatives are therefore including local content development in their plans and actively seeking partners who can contribute to this, such as local farmers' organisations, educational institutions and NGOs.

An example of local information demand and local content creation can be found in four "infoshops" in Pondicherry, India, a rural area of around 20,000 inhabitants (Shore 1999). In response to a list of information requirements identified during the trial period, volunteers in the villages created a local database that comprises:

- details of government programmes for low income rural families;
- cost and availability information about farming inputs such as seeds and fertilisers, as well as information about grain prices in different local markets;
- a directory of insurance plans for crops and families;
- pest management plans for rice and sugar cane;
- a directory of local hospitals, medical practitioners and their specialities;
- a regional timetable for buses and trains; and
- a directory of local veterinarians and cattle and animal husbandry programmes.

Without consideration of such local content, attempts to encourage greater Internet usage in telecentres may meet with limited success.

E-commerce

Examples of e-commerce applications in telecentres, especially in rural regions, are limited to date, but the development of Internet-based transactional services is coming more into focus. One example of such applications in rural areas in developing countries is the online ordering of vanilla from rural Uganda. With support and funds from the U.S. Agency for International Development (USAID) and its Agribusiness Development Centre, a Web site has been developed for the Uganda National Vanilla Association (UNVA), a private sector association of small farmers and processors who grow vanilla beans in addition to other crops to supplement their usually low income. This Web site has an online store where it is possible to order the vanilla with a credit card. The proceeds go back to the UNVA, but are currently more a means of supporting the further development of the association than a serious business. However, the Web site also provides contact for commercial importers with an interest in purchasing larger quantities.

Other e-commerce-related activities include several Web-based retailers of crafts and artwork from developing countries, both non-profit and commercial (see, for example, www.elsouk.com initiated by the World Bank and www.viatru.com from a Seattle-based company formerly known as World2market). There is some evidence that these activities increase the income of local craftspersons and artists and help preserve and showcase centuries-old traditions. However, the logistics of shipping and managing financial transactions presents a challenge.

In summary, while there can be considerable potential benefits and business opportunities in such value-added ICT-based services for rural and remote areas, in

many developing countries the more advanced services and applications of telecentres are still often underutilised and underperforming. In addition to the reasons given above, these services and applications are also sometimes severely hampered by technical problems, infrastructure restrictions such as bad telephone connections and bandwidth limitations, and insufficiently trained and experienced staff. Moreover, it is clear that services and applications must be tailored to local needs and conditions if they are to generate and meet demand.

FINANCING AND SUSTAINABILITY

The financing of telecentres varies according to whether the centres in question are being implemented in developing countries or in the developed world. In the latter, telecentres are often initially or partially funded by state or provincial governments, as is the case with the Canadian and Australian telecentres described later in this book, and/or through the national government, as in Australia where the federal government is now helping to fund the establishment of telecentres in New South Wales and Tasmania through its Networking the Nation fund.

In developing countries, telecentre initiatives are most commonly financed and supported by external agencies, often in partnerships. Such agencies include:

- international and regional (development) organisations such as the International Telecommunications Union (ITU), United Nations Development Programme (UNDP), the World Bank, the Food and Agriculture Organization of the United Nations (FAO), and the Organization of American States (OAS);
- national international development agencies such as the Canadian International Development Research Centre (IDRC), Canadian International Development Agency (CIDA), USAID, the Danish International Development Agency (DANIDA), the Swedish International Development Agency (SIDA); and
- educational and cultural institutions such as UNESCO, The British Council and the University of West Indies.

International and local NGOs also play a considerable role in implementing telecentres.

Private sector involvement in telecentres so far is fairly limited and comprises mostly in-kind contributions or donations rather than an active entrepreneurial role, as with the telecentre in Maseru, Lesotho, described later in this book, which was sponsored by DaimlerChrysler.

In contrast, small-scale phone shops or PCOs are overwhelmingly privately financed and run. Sometimes a form of licence or franchised brand name is introduced to standardise appearance or regulate the number of outlets, although this is sometimes more of a hindrance than a help to the development of the market, imposing more opportunities for official control than are necessary.

In general, PCOs tend to emerge where a sustainable and profitable market exists. It is noteworthy, though, that many PCO-type operations have been induced by specific obligations on operators — on the incumbent, the second national operator or even cellular operators. Examples of this are Vodacom and MTN which run PCO franchises in South Africa, PT Telkom's Wartels in Indonesia, Sonatel in Senegal and teleboutiques in Morocco. But it is not only these obligations that have created a favourable market and furthered the expansion of PCOs to provide access to telecommunications for the

poor and rural populations. Through such means as “rural funds” (or universal service obligations or universal access funds), commercial operators have been encouraged to provide services to rural and other under-served areas. Operators can receive (sometimes through competitive bids) subsidies to provide services to areas that would not otherwise be commercially viable to serve. Rural funds are often financed from a 1% or 2% levy on the revenue earned by certain telecommunications providers in a country. In other cases, government provides the funds. Successful and prominent examples of such funding approaches are found in Chile and Peru. Currently, there are also five additional rural funds in existence in developing countries and emerging markets, and eight more are planned (Intelecon 1999 and 2000).

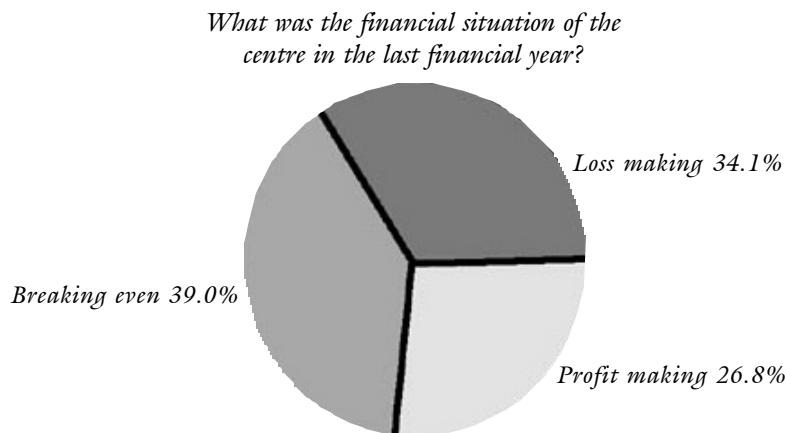
Telecentres are expected to be sustainable in the long term as their socio-economic impact and the opportunity cost of alternative modes of delivery are realised. Thus, almost all telecentres involve public/government support, but with an eye to eventual self-sustainability. Most also charge for their services, but not always at full cost.

Some telecentres also have the potential to be commercially viable in the medium- to long-term. Contrary to common perception, rural people in developing countries are usually able and willing to pay between 1% and 3% (or even higher) of their community income on telecommunications because it saves them more money than they would pay (e.g., on travel or selling their produce at lower costs to middlemen) if they did not have access to a telephone (Kayani and Dymond 1997). In the early stages, however, telecentres require public or private investment to offset the high start-up costs and piloting of new ideas.

Telecentres allow public agencies and private telecommunications and information technology companies to assess the demand for products and services while creating the market through exposing the public to the applications. They thus provide a means to explore rural locations as potential markets for those companies.

Experience in the UK suggests that profitability in the developed world is possible, though universally that has not been the case. Many telecentres have not been able to move beyond dependency on institutional or volunteer support and donations of equipment (Figure 1.1).

Figure 1.1: Profitability in UK telecentres and telecottages (Murray and Cornford 1999).



As Figure 1.1 shows, about one-quarter of the UK telecentres and telecottages are profitable and about one-third have experienced losses. This has also been the typical experience of telecentre projects in other European countries.

Experience on sustainability of telecentres in developing countries is very limited, as most of the projects are recent and not expected to be self-sustaining until after three or four years of operation. However, telecentres in developing countries may enjoy certain financial advantages over those in developed countries. For example, they may:

- generate a larger income from basic telecommunications access because they are the only provider in an area or can extend the infrastructure to as-yet unserved areas by, for instance, using satellite or wireless technology;
- receive block funding from the education, health and administrative ministries and other government agencies if they are recognised as a cost-effective means of delivering public services to rural and remote areas; or
- because of the low residential computer and Internet penetration of small businesses and households in developing countries, capitalise on the higher and more essential demand for public access to those services.

In a report to the ITU, Ernberg (1997) suggested that after initial investments are made, telecentres could provide annual pre-tax profits of US\$71,300, or about 60% of total annual revenues. However, some caution is necessary here, as any projections depend on specific local conditions, and the few financial analyses carried out by international agencies use sometimes hypothetical or optimistic revenues that cannot be achieved unless managers are astute commercial entrepreneurs. Some of the analyses also do not take full account of service take-up rates, the affordability of communities, and the need for rapid depreciation and amortisation of equipment common to the commercial ICT environment. Public access by inexperienced users in the harsh conditions of many developing countries may very well call for even more accelerated depreciation. In summary, there is no general business plan for telecentres. Each must be tailored to local conditions — and profits will be determined by those same conditions.

Currently, there is no multipurpose telecentre in a developing country that has proved to be self-sustaining when all the financial factors are taken into account. Many of those centres have been operational for only a short time and challenged by many teething problems. Still, judging from what limited data are available on the financial performance of the telecentres, and from what practitioners and experts have said, the prospect of the centres becoming self-sustaining is rather questionable. A look at the ownership and operating models (below) sheds some light on the reasons for this not-so-optimistic outlook. It also shows emerging trends and suggests other approaches that promise to be financially more viable.

OWNERSHIP AND OPERATING MODELS

While telecentres vary in many aspects, one common characteristic is that they are virtually all initiated by development agencies and run by local NGOs. Thus, for example, the info-shops in Pondicherry, India, are funded by IDRC and implemented by the M.S. Swaminathan Research Foundation; the South African Universal Service Agency's telecentres are awarded to "community-based organisations"; the Uganda National Council for Science and Technology (UNCST) manages the telecentres in Nabweru and Buwama, which are funded by the IDRC; and the Nakaseke telecentre in Uganda is supported by the U.N. Educational, Scientific, and Cultural Organization

(UNESCO), U.N. Economic Commission for Africa (UNECA), IDRC, ITU and the World Bank.

This mode of ownership is naturally reflected in the operating model — and accounts for some of the problems accruing from it. The objectives of many of the NGOs responsible for operating the telecentres are to foster and facilitate specific development activities. Therefore, the local owners or managers, as non-profit bodies, are not driven primarily to make a commercial success of their centres, nor are they often business-minded or skilled in generating business and revenue. As a consequence, although exceptions exist, there are commonly problems with:

- *Pricing* — Pricing strategies and guidelines are often lacking, and the prices do not reflect the cost of providing the services.
- *Market analysis and business planning* — Proper demand studies and business plans carried out before the establishment of telecentres are often missing.
- *Competition* — Where there is existing infrastructure, local entrepreneurs who provide telecom access and business services are likely to compete with the telecentres. Many telecentres are not prepared for this and, if they provide subsidised services, they distort the market for emerging local entrepreneurs.
- *Human resources* — Many telecentre managers and staff are not appropriately compensated for their work. As well, the centres typically rely heavily on volunteers. Both factors lead to difficulties in motivating and retaining staff.
- *Training* — Managers and staff are often untrained in advanced operations, financial management and customer service.

In summary, telecentres are often seen as supply-driven rather than demand-driven because of their ownership structure and operating model. There is an emerging trend that calls for more demand-driven models, supported with private sector involvement and entrepreneurship. This trend is also reflected in some of the case studies presented in this book, notably those located in South Africa, Canada and Western Australia.

CONCLUSIONS AND RECOMMENDATIONS

Many different models for telecentres exist, but the same is not true when it comes to models of ownership, management and financing. Telecentres in developing countries are almost exclusively funded by international aid agencies and are owned and/or managed by national or local NGOs. The private sector is usually only asked to sponsor equipment; it is not offered any other possibility for attractive involvement.

There is great scope for exploring new models of telecentre ownership and financing, and interest in doing that is growing among private-sector telecom and information technology players. This is not to say that telecentres funded by government or aid agencies and managed by NGOs do not have their place. Such centres, although struggling with issues of self-sustainability, are pioneering in this field and will continue to play an important role in testing new services and applications, creating awareness, and incubating ideas and opportunities for rural communities. But they may not provide the model for large-scale replication that is needed for widespread socio-economic development in developing countries where government funds are limited. Only economically successful models are likely to replicate themselves in larger numbers and spread the benefits beyond single locations.

New approaches, involving the private sector, are required. But how can commercial telecom and ICT players be attracted into serving the technology-based needs of rural communities and developing countries? The solution is not simple and several avenues may need to be explored. The PCOs have been encouraged to reach beyond urban areas through a mix of obligations and incentives that offer private sector players an attractive investment opportunity. Similar options and guiding principles for telecentres might be considered. For example:

- *Demand-driven models* — Instead of starting with huge investments and the whole range of possible equipment, services and applications, smaller telecentres could be designed, which would expand and grow only if and when demand and affordability allowed this. Large visions should not be imposed from outside, but astute local business people should be able to sense where good opportunities exist and help maximise both the scale and viability of a telecentre.

- *Commercial models* — Such telecentres could be planned and run on a commercial basis and managed by local and “highly spirited” entrepreneurs capable of developing a business and management system.

Preference should be given to telecentre solutions which have a franchise element and can establish a network of telecentres through the involvement of national telecommunication firms and Internet players. The success of the telecentres in Western Australia and Hungary (described later in this book) is partly due to the fact that they are made up of large networks and represent economies of scale for users and providers alike. A network of telecentres under a single management carries the advantage of providing quality standards and support — such as a start-up package, an operating manual, recruitment and training guidelines, name branding, and standard payment vehicles (e.g., pre-pay cards) — that increase the centres’ recognition nationally and their presence in urban and rural localities. Such support tends to raise the quality of the centres and increase the chances that urban dwellers will purchase pre-pay cards or otherwise finance the participation of their rural friends and relatives.

- *Rural funds for telecentres* — This policy instrument (similar to the universal service obligations, universal access funds or rural funds used around the world to ensure access and services for the rural, poor or otherwise disadvantaged) could provide “smart subsidies” for commercial telecentres in rural areas to help offset the large start-up costs or to subsidise telecentres on an ongoing basis in areas that are truly beyond commercial viability (Intelecon 1999 and 2000).

- *Other funding options for telecentres* — Two examples of options that might be offered by international aid agencies and organisations:

- Micro-loans (say, of up to US\$15,000) for local franchisees, entrepreneurs or phone shop operators wishing to start a telecentre business and purchase computer equipment and other advanced ICT equipment to establish small privately owned and operated telecentres.
- Seed finance on matching basis for qualifying national or regional private sector players wishing to establish or extend a larger-scale telecentre operation into rural areas.

- *Multi-sector support*: International development NGOs or agencies aligning themselves with a national telecentre operation could sponsor services and applications that are not self-supporting while the profitable services are commercially run and managed.

- *Contracting telecentre facilities* — International development NGOs and institutions, as well as local governments, can be major users of telecentre facilities and services if they involve the telecentre in, for example, an educational outreach, rural development, public governance or health programme. Contracting the telecentre to provide certain public services brings these agencies cost-efficiency gains while at the same time providing the centre with additional revenue. This is being successfully achieved in the Hungarian telecottage network (described in Chapter 5 of this book).

Basic telephony services can be delivered commercially without major outside investments, if the basic telecommunications access infrastructure exists. Telecentres should not compete with (or be planned in such a way as to reduce the viability of) an existing basic telecommunications retail business that involves local agents and entrepreneurs.

All around the world, the liberalisation of the telecom sector has shown that, with the introduction of private players and market competition, telephone access and services have increased and tariffs have been reduced. That such benefits are also available for the disadvantaged and rural population can be ensured by smart policy and regulatory instruments such as rural funds that entice private players to bid competitively to serve rural areas with the least amount of subsidy.

A similar approach to telecentre development should be explored: one where the private sector and local entrepreneurs are supported and encouraged by favourable policy and regulation to provide to rural areas a range of ICT-based services and applications on a for-profit basis. Such an approach needs the support of international development banks and institutions to kick-start larger-scale deployment with smart subsidy and seed finance. It also needs the involvement of the local community and NGOs who can enrich telecentre services by adding their development assistance. A true public-private partnership is required.

In this spirit, we close by sharing an excerpt from a piece by C.W. Dugger that appeared in *The New York Times* (May 2000), describing a project in rural India where initial steps have been made to involve local entrepreneurs:

One such public-minded civil servant is Amit Agarwal, the creator of the model computer project in the state of Madhya Pradesh. It is Mr. Agarwal who has taken power out of the hands of bureaucrats and given it to village entrepreneurs.

Mr. Agarwal, 29, the chief executive of the Dhar district council, said he believed that while low-level bureaucrats might be tempted to demand bribes, an entrepreneur being paid to provide the records retrieved on a computer would be more inclined to work hard.

He has set up a model project in his district, one of India's poorest, where young men have a franchise from the state to distribute daily crop prices and commonly needed state records for a small fee.

Mr. Agarwal predicts that revenue-generating computer projects like his will spread more quickly than those that depend on scarce state funds. "This is the paternalistic welfare model that the country has been slowly discarding over the past decade as not having worked," Mr. Agarwal said.

Since the project was set up in January, 22 villages have each bought a computer, a modem, a printer and a battery for \$1,500 with their own money and agreed to provide a small booth to house the setup.

In each case, the state then picked a young person from the village with at least a 10th-grade education to operate the computer and gave him a franchise to sell information from the state's computer network.

For 25 to 35 cents, villagers buy printouts of documents that they might have spent days trying to get from local bureaucrats: land records, caste certificates and proof of income, among others.

For another 25 cents, any citizen can send a complaint to the state by e-mail — my pension didn't arrive, my child's teacher didn't show up, my village hand pump doesn't work — and the state guarantees a reply within a week. And for 10 cents, a farmer can get a printout listing the prices of any agricultural commodity sold at surrounding markets.

At Bagdi village, wizened, sun-beaten farmers filed in to collect the day's price lists for wheat, garlic and whatever other crops they had to sell. They all said their knowledge of the rates improved their negotiating leverage with middlemen. "If the price he offers suits me, I'll sell it to him," said Satya Narayan Khati, who grows wheat on his three acres. "Otherwise, I'll take it to market myself."

In Bagdi, the computer booth is operated by Deepak Patel, 20, a gaunt, lanky son of a farmer. Mr. Patel still helps milk the cows and bring in the harvest, but he prefers his computers. After just a few months, he is already making a good living from the long hours he spends selling printouts.

When people come in to e-mail a complaint to the state, Mr. Patel writes out their grievances for them, since most residents of the district are illiterate. In his booth, as in every computer centre visited in Madhya Pradesh and Pondicherry, children crowd in, clamouring for a chance to play on this machine that their elders call a magic box. "It's better than farming," Mr. Patel said. "Through this you feel connected to the rest of the world."

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CHAPTER 2

THE WESTERN AUSTRALIA TELECENTRE NETWORK

*Gail Short
Telecentre Consultant*

LOCATION AND CONTEXT

Western Australia is Australia's largest state, covering about one-third of the country's 7,682,300 square kilometres. It is also one of the least populated, with 1.7 million people, predominantly clustered around the state capital Perth and 11 major towns. The 200 other communities, ranging from the small settlements scattered across the spectacularly rugged Kimberley region more than 3,000 kilometres north of Perth to the coastal towns of the Great Southern region 500 kilometres south of Perth, have a total population of only 200,000. It is these remote and rural communities that the Western Australia (WA) Telecentre Network (currently made up of 76 centres, but planned to increase to 100) aims to serve.

HISTORY

The WA Telecentre Network had its origins in a request by the WA Office of Higher Education to the author, then one of its senior research officers, to explore ways of improving access and support for those wishing to pursue post-compulsory studies in remote and rural Western Australia. The author's research led her to suggest that the answer could lie in technology and she requested a review of delivery modes be undertaken. The subsequent consultants' report (Latchem and McGregor 1991) recommended the establishment of a WA Learning Network. A subsequent survey conducted in the remote northern Kimberley region provided strong support for the idea of a trial being conducted in that region (McGregor 1992).

The National Board of Education, Employment and Training agreed to provide priority funding for the first two years of the trial. The WA Office of Higher Education appointed the author as support officer for the trial stage. Murdoch University provided free accommodation for the co-ordinating office. The director of the inter-university WA Distance Education Consortium was asked to oversee the project. And three prototype centres were established, equipped with basic technology (computers, a facsimile machine, photocopier, modems).

Within months it became evident that such a network could not only address educational needs, but provide a technology hub for a wide range of government and community services and programmes in regional Western Australia which was, in its own words, “doing it tough” — suffering a declining rural economy and the downsizing and re-locating of services to the major centres.

AFFILIATES/STRATEGIC ALLIANCES

Early in 1993, there was a name change to the WA Telecentre Network, emphasising the shift from an exclusively educational focus to educational, community and labour market programmes. At that time, federal Department of Primary Industry and Energy, keen to promote the “Nordic telecottages” concept, was making monies available for pilot telecentre programmes. Western Australia was able to avail itself of these funds and quickly increased the number of centres to 18. And, as the Network grew, so did the opportunities.

In mid-1993, the Network moved from being under the aegis of the WA Office of Higher Education to come under the WA Department of Employment, Vocational Education and Training (DEVET). The Department of Primary Industry and Energy had agreed to fund 13 of the telecentres for a period of two years, and DEVET agreed to provide funding for the other telecentres for three years and to pick up the costs of the federally funded telecentres in the third year. A four-person Support Unit was established and the WA telecentres were connected into the state government-funded satellite Westlink system to receive the live and pre-recorded school- and tertiary-level educational TV programmes transmitted from the DEVET Media Network studios.

The Network then went on to grow to 38 state-funded centres that became study and work places for 120 unemployed persons in the government’s Jobskill scheme, enabled 3,000 student units to be taken by learners, and started to produce community newspapers, provide desktop publishing services and offer bookkeeping and other services to small businesses.

In 1996, the host organisation, DEVET, was restructured and the Network was evaluated (Oliver 1996). The Network was found to be operating and managed effectively, but it was recommended that it should encompass a full range of government and non-government services and that the Management Advisory Committee should be reconstituted to be more representative of business and enterprise. In light of these developments, it was deemed appropriate that the more generic WA Telecentre Network should come under the WA Department of Commerce and Trade (Regional Development Division). This move was effected in May 1997. Since then, there has been exponential growth in the Network, its programmes and services, and a building up of “networks upon networks.” Extension of the Network to 100 centres is now planned. Some centres are developing into telehubs, and the rollout of telecentre access points for communities of 80 – 200 persons is well under way.

AFFILIATIONS AND STRATEGIC ALLIANCES

The Network now provides a comprehensive range of services throughout the state. Some or all of the telecentres offer or support the following functions:

- *Internet-related services* — Providing Internet/Web access (all centres), Internet Service Provider/point of presence (POP), e-mail post office, Web page design, chat groups, special events such as Internet Olympathon, Online Australian Day.

- *Computer-based services* — Providing sales and service, training, design of conference/seminar presentation material, etc.
- *Resource centre services* — Providing desktop publishing, printing, laminating, photocopying, facsimile services, secretarial services and administrative support for meetings (all centres).
- *Social activities* — Supporting TeleYouth, KidsClub, TeleSenior and BushNet networks, technology information evenings, etc.
- *Government services* — Providing federal government, state government and local government information services.
- *Labour market programmes* — Supporting the current Coalition Government's Centrelink scheme, the former Labour Government's Joblink scheme and Work for the Dole schemes (all centres), providing training via satellite, providing local access to work experience and placement programmes, enabling the long-term unemployed to re-enter the workforce, etc.
- *Community programmes* — Producing community newspapers (50% of all centres); providing tourist information, heritage information, information radio, Satellite Shopping Channel, library services, book exchange and community craft shop outlets; organising community projects and activities such as fun runs and vintage car trials.
- *Local enterprise* — Providing landcare and imaging services; accommodating agribusiness centres; supporting Women in Agriculture, and organising Field Days, New Enterprise Initiative Scheme (assisting with new business development) and the establishment of telework, tele-accounting and e-commerce. Communities are also investigating the establishment of Transaction Centres (acting as community banks, Medicare Easy Claim offices and post offices) and other ways in which local commercial activities can be managed through the telecentre system.
- *General* — Selling tickets for theatrical and sporting events in Perth and other major centres; providing payroll services, telephone answering services, art and craft outlets, engraving services, trophy sales, inventory services, security services, video libraries and grant-writing assistance; acting as cyber cafés, advertising distribution points, bus stopover and ticket sales points, and accommodation and equipment rental locations.
- *Post-compulsory education* — Providing for tele-education; enrolling and supporting vocational education and training students (in eight years, enrolments have risen from 640 to 2,500 – 3,000 student units per year); providing rooms, supervisors and technical support for off-campus tertiary examinations (all centres); operating as university “campuses” (two centres). Before the Network was established, 80% of the people enrolled in distance education in the areas covered by the centres were male; two years later, 80% were female.
- *Lifelong learning* — Providing short courses on demand for local communities, training for seniors and others in uses of information and communications technology (ICT), administering Scitech programmes (science/technology activities for children), etc.

As well, a number of other functions for the Network are currently being tested or are envisioned for the future:

- *Telehealth* — At the time of writing, telehealth programmes were being tested in hospitals, health centres and telecentres to determine where future programmes might be best located.

- *Telelaw* — At the time of writing, telelaw programmes were being tested in 12 sites with a view to extending this service in 2001.
- *Other services planned*— Australian Country Information Service, On-Line WA (distribution of all government information), and community radio stations.

COSTS AND FUNDING

Worldwide, many telecentres have come and gone, some because they were only established to provide a training ground for computerisation, and others because they lacked long-term financial support once the seed monies were exhausted. In the case of the WA Telecentre Network, however, close attention was paid to sustainability from the very outset.

In 1993, it was agreed that each newly established telecentre would be granted Aus\$20,000 per annum (at the time of writing, the Aus\$ = US\$0.59) subject to its meeting quality standards and the requirements of a Memorandum of Understanding and Resource and Performance Agreement. The telecentres could also ask the Support Unit to negotiate on their behalf for new programmes, services and monies. Thus, for example, the Support Unit brokered an agreement with the WA Lotteries Commission which enabled each telecentre to apply for up to Aus\$20,000 for additional equipment after three years of successful operation.

The Support Unit administers a Project Initiatives Fund to help telecentres establish new programmes or services. This has enabled numerous small initiatives to come to fruition. The telecentres themselves have also become more and more successful in obtaining large and small grants, not only for their own operations but also for other groups and activities within their communities.

Between 1991 and 2000, the Support Unit succeeded in obtaining Aus\$27 million in grants and other external funding. In 1997, it was successful in accessing Aus\$4.9 million from the federal government's Networking the Nation Fund to increase the Network from 38 to 100 centres, establish 100 telecentre access points for communities smaller than 200, build eight portable telecentres for isolated communities at least 500 kilometres from Perth, and install compressed digital videoconferencing facilities in all centres. Additional monies have been gained for the TeleYouth, TeleSenior and other initiatives.

The new millennium has seen the state government recognise the WA Telecentre Network as “core government business” and allocate it its own annual budget.

ACCOMMODATION

The Support Unit requires any community seeking to establish a telecentre to provide rent- and maintenance-free accommodation. In the early days of the Network, two rooms and an office and storeroom would suffice for a telecentre. Today, as the telecentres evolve into fully fledged multipurpose community centres, more than half of them have moved into much larger premises, often re-locating from edge-of-town or sidestreet sites into higher profile accommodation on the main street. It is not uncommon for telecentres to move into banks closing as a result of “rationalisation,” and to maintain these services alongside all the other more longstanding services. Other telecentres co-locate with state government libraries, Business Enterprise Centres, Community Development Offices, Aboriginal Economic Development Offices,

Community Youth Offices, arts and craft groups, or Community Agriculture Centres. Others co-provide with universities, technical and further education institutions, childcare groups, and various state government departments and agencies.

MANAGEMENT

Local level

The WA Network telecentres are community owned, managed and incorporated. Such an arrangement was implemented in 1993 to ensure that each community realised that it had the opportunity to shape the destiny of its own telecentre and operate it as a separate entity.

Each telecentre is managed by its own legally appointed Management Committee and, as such, has the right to establish services and programmes outside those established corporately. The Management Committee is required to sign a Memorandum of Understanding with the Support Unit and to meet the requirements of a Resource and Performance Agreement, although a vital and committed Management Committee can provide an almost limitless range of services over and above those agreed to. The telecentre Co-ordinator/Manager answers directly to the local Management Committee on all issues, including staffing.

In the early days, it was not uncommon for a Management Committee to feel a little overwhelmed by the mandates, technologies, personnel matters and programmes it was called on to administer. Many members felt that the Co-ordinator knew more than they did and tended to stand back and let him or her take charge. To address this issue, the Support Unit staff visited all the telecentres to ensure that the Management Committees undertook a more proactive and critical role. A subsequent conference/workshop held for the Management Committees proved to be the turning point in the members' understanding and willingness to take on the necessary responsibilities.

The Management Committees are required to meet regularly, hold annual general meetings and ensure the democratic election of new and returning members. They are also required to maintain quality assurance procedures and to follow a mutually agreed blueprint or plan. The Management Committees have their own online chat group, hold regular regional meetings to discuss problems, plans, policies and new initiatives, and meet every second year at their own conference.

It has been found that the most effective committees are those with a diverse and representative membership, in which each member is responsible for a particular portfolio.

Regional level

Because Western Australia is so vast and diversified, programmes and services established in one region may have little application in another. Thus, the telecentres also operate on a regional basis, allowing the development of regionally focused programmes. Each of the existing four regions is overseen by a Regional Co-ordinator who supervises approximately 20 telecentres. These Regional Co-ordinators are country people residing and working within their own areas. Their role is to:

- provide day-to-day support;
- train new staff and provide ongoing training;

- run workshops for the Management Committees;
- identify the needs and opportunities for new regional programmes and services;
- seek funding for new ventures on a regional basis;
- report to, and meet with, the Support Unit on a regular basis to collectively identify new network-wide ventures, needs and sources of funding; and
- provide corporate advertising and publicity throughout their regions.

State level

Each telecentre is part of the WA Telecentre Network, supported by the Support Unit headquartered in the Department of Commerce and Trade in Perth. The Support Unit:

- lobbies government, bids on behalf of Network members for funding, tenders to provide services and programmes, organises training, and provides other support, collectively or on an individual basis;
- hires the Regional Co-ordinators;
- provides publicity and promotion on a collective basis, advertises through the media, and produces and distributes the network's magazine *Connection*;
- undertakes surveys; and
- provides executive support to the WA Telecentre Advisory Board.

The Chair and Deputy Chair of the WA Telecentre Advisory Board are appointed by the Deputy Premier and are both rural people. The Board comprises a telecentre manager and chairperson from each region, representatives of the Department of Commerce and Trade, the Deputy Premier, the Support Unit, representatives of local government, the Regional Co-ordinators and the Team Leader of the WA Telecentre Network. Other than those sitting on the Board by virtue of their position, all members are voted in by Network members in an open election. The Board must have 10 members who are living within the telecentre communities and five persons with rural and remote experience.

STAFFING

Telecentre Co-ordinators

Each telecentre has a Co-ordinator who is responsible for managing the centre on a day-to-day basis and is answerable to the Management Committee. He or she needs community knowledge, entrepreneurial flair and some business and/or professional expertise for this work. Technical knowledge is not essential, but highly desirable.

Support staff

Many telecentres prefer to employ part-timers with particular expertise. This arrangement provides local people with opportunities to combine work and family commitments and offers more flexibility in staffing. It can also encourage more enterprise. For example, people interested in desktop publishing may start working one or two days a week, but be given longer work hours if they can further develop their

skills and the market for their services. Some WA telecentres have managed to employ up to nine part-time workers. Many of the centres also make use of volunteers.

Volunteers

Telecentres provide free training to those willing to provide their time and assistance free of charge. This not only enables volunteers to carry out their duties, but gives them new skills and interests to apply in other spheres. Senior citizens and early retirees, once they become involved with telecentres and understand the technology, have been found to be more than willing to provide their time.

TRAINING MANAGERS, STAFF AND USERS

As shown above, it is policy that training be provided for the Management Committees, the telecentre Co-ordinators, and the support staff and volunteers.

The WA telecentres are also charged with providing lifelong learning for the communities they serve. This covers everything from promoting and supporting tertiary studies to providing basic training in understanding and using computers and associated equipment, using credit cards at petrol pumps, using automated bank machines, and even programming microwave ovens. New needs are constantly arising, for example, Y2K compliance (at the beginning of 2000) and use of e-cards were hot topics. Flexibility and evolution are two words used frequently within the Network as it helps remote and rural communities adapt to a changing world.

PUBLICITY

The WA Telecentre Network has a distinctive logo and makes use of print, radio and television advertising, leaflets, audiovisual packages and the Internet/Web to make its presence and services known. In its first year of operation, the Support Unit produced a simple newsletter to share information between telecentres. This has now grown into a quarterly coloured glossy magazine, *Connection*, which goes all over the world and has a readership of more than 2,500. Speaking engagements by Network staff are undertaken locally, nationally and overseas, and the Network's numerous awards have also given it a high profile. A 1999 telephone survey indicated that 85% of persons surveyed in each community served by a telecentre knew what a telecentre was and where their local centre was situated.

ACCESS

Telecentres are required to be open 20 hours a week to qualify for grants towards salaries, but the actual opening hours are determined by local Management Committees and in accord with community needs. Many centres offer 24-hour access, with approved individuals using security numbers or swipe card systems (the latter being found to be more reliable and secure).

During the nine years of the Network's operation there have been very few break-ins or thefts. One can only presume that the centres, being community-owned and -managed and playing such a vital part in the life of the communities, are generally regarded as inviolable places and that any act of theft or destruction would bring swift retribution to the person or persons involved.

TECHNOLOGY

The WA telecentres are hubs in a Network that brings into the regional communities those technologies and services not previously available, and restores or revives those programmes and services that have been withdrawn or down-sized. Each telecentre in Western Australia has:

- Internet access at local call cost;
- TV and one-way video/two-way audio (through Westlink);
- access to a purpose-built extranet;
- the latest computing facilities and software; and
- ICT support equipment.

Two-way compressed digital videoconferencing is currently being installed in all centres, opening up possibilities for tutorials, training, telelaw, telehealth and telebanking (with one bank manager serving all telecentre banks and communicating with customers by videoconference as well as via the Internet).

In 1994, when DEVET began its satellite “talk-back TV” to the then-18 telecentres, it was projected that 300 students would enrol in its courses. In fact, 640 students enrolled for TV-based studies and a further 300 enrolled through the Network to take the courses face-to-face. Talk-back TV is still the cheapest means of reaching the whole of remote Western Australia and allowing all parties to participate. The dishes and decoders, which are provided by Westlink, cost only Aus\$1,500 per site. However, over the years the users have tended to move away from the live “lock step” interactive teleclasses, preferring to take home the videos or enrol in the courses actually provided in the telecentres.

It is interesting to reflect that when the Network started, fax was not available in homes, computers often did not have hard drives and photocopiers did not have collators. The challenge to the Network has always been to stay one step ahead in the game of providing technology and technology-based services.

RESEARCH AND EVALUATION

There have been two formal evaluations of the Network: a preliminary formative evaluation, Networks on Trial (McGregor 1992); and a later review, Networks into the 21st Century (Oliver 1996). The Network has also been included in a number of federal and state government reviews. What these have shown is that the WA telecentres have become focal points in their communities, and that they benefit not only individuals, but whole communities, helping to stem rural decline, raising self-esteem, improving communications, providing jobs, and retaining and generating many millions of dollars in regional Australia.

In providing ongoing funding for the Network, the state government clearly judges the system to have economic, political and social value. Another measure of success is that, with the exception of two centres forced to close by a combination of poor management and declining community numbers, and two centres having to re-locate, the WA telecentres have shown themselves to be sustainable. In the same period, 78% of the telecentres in the eastern states of Australia have been forced to close.

The telecentres operate in accord with a rigorous accountability and quality system that includes:

- a Telecentre Starter Kit which includes FAQs (frequently asked questions) and answers;
- an Expression of Interest form that an applying community must complete and submit to the Support Unit to determine whether the community should proceed to completing a full application and business plan;
- a Tool Kit to help communities through the application and business plan process;
- a Resource and Performance Agreement against which centres are measured for ongoing grants;
- a Memorandum of Understanding that defines the mandate and performance of all centres within the Network;
- a Quality Assurance document that measures success;
- a Roles Manual that defines the tasks of telecentre managers and staff and the criteria for selecting these;
- a Code of Ethics;
- a Confidentiality Agreement;
- an annual reporting scheme (for programme and activity information on other than that required under the Resource and Performance Agreement); and
- the annual collection and collation of usage and performance data.

The network has received a number of national and state awards:

- 1995 Adult Learners Week National Award for Innovation in Open Learning
- 1996 Australian National Training Authority National Best Practice in Training Delivery Award
- 1997 Western Australian Premiers Award for Service to Rural Western Australia
- 1997 Royal Agriculture Society Rural Achievers Award
- 2000 Government Technology Productivity Silver Award (recognizing use of technology to provide better service and improved technology for regional communities)

As well, the federal government's 1995 National Board of Employment and Training report, *Converging Technology, Work and Learning*, made the following recommendation: "Advise the Minister for Primary Industries and Energy of the important education and training role played by the telecentres and support their strengthening and extension along the lines of the Western Australian Telecentre Network in the current review of their operations."

Applying for such awards has been found to be well worth the time invested. The resultant recognition has proven to be highly motivating for the Management Committees and the telecentre staff and volunteers and has lifted the national and the international profile of the Network, adding to its credibility.

Informal feedback is equally encouraging. The Chief Executive Officer of the local council in a remote community reports:

I was against the establishment of a telecentre in this community —
I felt it would damage the way of life we currently enjoy and love.

I was wrong, what has happened is that the telecentre has established a “pipe to the world” which will enable us to continue to live and enjoy the life we know in this community, while also having access to programmes and services we never dreamt of.

A student writes:

I want to express my appreciation for the very enjoyable and informative classes you have presented. I have learnt so much and it has made me feel a lot more confident in using my computer.

This past few months, being able to study a computer course via satellite, while living “out in the sticks,” has been a wonderful experience because we seem to miss out on so many opportunities when living so far from a town or city.

A woman on the Work for the Dole programme who worked as a volunteer in a telecentre says:

I used to watch television 18 hours a day . . . then I began participating in the Work for the Dole programme run at our local telecentre. My life has completely changed. I now work at the telecentre every day. When the Co-ordinator discovered my interest in the history of our town, she encouraged me to publish my findings which I have now done.... I have to say that the telecentre has changed my life. I have discovered a whole new world and have learned so much. Today I only watch television three hours a day!

And reports like the following are received:

A phone call to a centre by the Support Unit was replied to by a tearful Co-ordinator. When questioned as to what was the problem the reply came: “I have been working with a cerebral palsy child for some months as he has never been able to communicate with his parents. He has just typed his first message to his parents and there is not a dry eye in the place.”

Another telecentre had commenced a community newspaper and required a journalist. A young lass in a wheelchair was identified and she became a familiar figure as she visited numerous people in the community collecting stories on her dictaphone. Today, this young lady is a journalist in the city.

CONCLUSIONS

Numerous lessons have been learned over the past nine years of the WA Telecentre Network. The Australian experience has shown that telecentres established on an ad hoc basis have difficulty surviving. Establishing a network of telecentres may seem ambitious, but it appears to be more sustainable because government departments and private enterprise can see the benefits in regional as well as community service. There are also great advantages in the centres being able to operate and contract to provide services individually, in a cluster or on a regional basis, or as part of the overall network.

It is essential that some form of central support unit be available from day one. Such a unit is needed to provide a central focus, lobby for facilities and negotiate opportunities for the network as a whole. Ongoing funding in return for performance and quality is another must. While the WA Network's funding only pays for 20 hours per week of each telecentre's operation, this has been found to be enough to keep the ball rolling, particularly in the remote and severely disadvantaged areas. Distributing the same amount uniformly across the network helps to make all involved feel they have an equal share. Making the telecentres community-owned and community-managed is empowering and encourages local enterprise.

The future of the WA Telecentre Network appears bright. The telecentres are part of the state government's core business and have their own ongoing budget. They also have guaranteed funding for extension to a 100-site Network, an additional 100 telenodes (access booths) and further technology upgrades, and they have a project fund to foster new initiatives. With the structure in place, it is now necessary for the Network to continue evolving and to stay one step ahead of the technology available in people's homes.

In conclusion, as the WA Telecentre Network experience shows, the key components for a successful telecentre are:

- a high-profile, main street location;
- a Co-ordinator who is entrepreneurial and a "people person," not a technologist;
- an active, influential committee;
- a supportive community;
- a support network and central support unit;
- access to ongoing funding measured against some form of resource and performance agreement; and
- strict quality control.

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CHAPTER 3

THE QUEENSLAND OPEN LEARNING NETWORK, AUSTRALIA

*Anne Gooley
Chief Executive, Queensland Open Learning Network*

INTRODUCTION

The Queensland Open Learning Network (QOLN) (www.qoln.net) was established in late 1989 by the Queensland State Government. Its purpose is to expand the scope and range of educational opportunities available to regional, rural and remote locations through a statewide network of Open Learning Centres supported by a sophisticated information and communications technologies (ICT) infrastructure.

The Network facilitates the provision to communities of formal accredited programmes from universities, colleges and other educational and training providers. It also offers its own programmes and support services in response to specific community needs. The network aims to foster lifelong learning; motivate and empower people to acquire new knowledge, skills and understandings so that they may lead fuller and more productive lives; and support the development of learning communities capable of adapting and responding collectively to new circumstances and environments.

Traditionally, Australians have looked upon their land as being part of a “lucky country,” rich in natural resources. Queensland gains great benefit from its agricultural, mining, tourism and other industries. However, world markets are changing, and falling commodity prices have particularly affected the regional areas. Now the call is for Australia to become a “knowledge nation,” upgrading its knowledge and skills, adding value to its traditional industries and developing new technology-based and service industries. Historically, however, the participation in post-secondary education in remote and rural areas has been roughly half that in urban areas. This has been due partly to the “tyranny of distance” and partly to socio-economic and cultural factors, especially in the case of Aboriginal peoples.

Such political and social issues demand entrepreneurial flair, inter-sector collaboration, community action and imaginative applications of ICTs. Australia has always been an early adopter of new technology and, with its remoteness and huge internal distances, it is clearly heavily dependent on internal and external communications. The infrastructure for ICT services is rapidly developing. In August 2000, 97% of the population and

12.5% of the land mass were covered by digital services — and it is just a matter of time before the only problems will be in the fringe areas of coverage. Moreover, the telecommunications industry has been deregulated, leading to greater competition. Despite these favourable advances, people in rural and remote areas still face higher costs of access and poorer levels of service than those in the major conurbations. These are the problems that QOLN seeks to address.

LOCATION AND CONTEXT

Queensland is Australia's second largest state, encompassing some 1,743,300 square kilometres. It has a population of approximately 3.5 million, 1.5 million of whom live in the state capital, Brisbane. The other 2 million are widely dispersed in small towns and remote and rural communities. Providing services to these communities — which range from the tropical rainforest and savannah lands of the far north, through the rich farmlands and sugar plantations and on to the remote outback — presents daunting challenges. Without QOLN and its Open Learning Centres, many of these communities would be severely disadvantaged in terms of having access to educational services provided by Australia's universities, TAFE (Technical, Further and Vocational Education) Institutes, and other public and private providers. As Figure 3.1 shows, there are approximately 50 Open Learning Centres across the state. However, this map does not give the full extent of the coverage because, in addition to the centres shown, QOLN also sometimes establishes satellite centres in very small communities to meet their specific short-term needs for education and training.

Figure 3.1: Locations of the Queensland Open Learning Network Centres.



HISTORY

The Queensland Open Learning Network was really ahead of its time in recognising, in the late 1980s, that educational institutions needed to be far more responsive to the forces of change reshaping the processes and circumstances of learning and the expectations of the learners. The Network was the first statewide system set up in regional Australia to harness the new learning technologies and be a driving force behind access to lifelong learning by people in outback Australia (or, in local parlance, “beyond the black stump”).

The precursor to the QOLN initiative was the small number of Study Centres established along the coast of Queensland in the early 1980s by the University of Queensland (UQ). The University had been a major provider of distance education for many decades and was actually Australia’s very first “dual-mode” university. These Study Centres, which were typically situated in local council buildings or TAFE Institutes, were established for the use of UQ’s distance education students who, at that time, studied mainly through print and correspondence. Later, the state’s two other distance teaching universities, the University of Central Queensland and University of Southern Queensland, decided to share in the cost of these facilities in return for their students having access to these Study Centres’ libraries, quiet study areas and computers for assignment typing.

The centres were certainly well used and they met the needs of the distance learners of that time. However, in the late 1980s, UQ decided to discontinue being a distance education provider and it closed down the Study Centres. A number of leading educators then approached the state government for funding to establish ICT-based Open Learning Centres to encourage innovative delivery to rural and remote communities. Funding was also sought for the development and delivery of bridging programmes for those lacking the required entry qualifications for post-secondary education.

Following state government endorsement and funding approval, the Queensland Open Learning Project was established in late 1989. The initial funding period was only one year and the project was commissioned to conduct two pilot programmes: one on establishing the Centres, and the other designing and delivering educational programmes that would test the potential of the project’s delivery system. Approximately Aus\$1 million was allocated to establish and equip a statewide network of Open Learning Centres, provide the ICT infrastructure, fund the head office staff and Centre Co-ordinators’ salaries, and meet all of the telecommunications and running costs — a modest sum indeed for such a large and challenging project! No provision was made for the purchase or rental of buildings for the centres, and the communities themselves were made responsible for this, something they responded to generously.

The project was officially launched in Bundaberg in July 1990, by which time 15 centres had already been established, ranging from Badu Island at the tip of Cape York Peninsula in the north, to the Gold Coast in the south and Mount Isa in the west. A commissioned report on the project’s first year declared that it was meeting a great need, doing great work, and should be supported. From that time on, QOLN (as it came to be called) has been partially funded by the state government.

During the early stages of QOLN, the communication infrastructure was neither robust nor reliable and the communication costs were high. As a result, the use of ICT for teletutorials and other applications was relatively modest. Nevertheless, the Open Learning Centres proved their worth in enabling students to interact with their lecturers

and fellow students at other sites, find a quiet place for study, type assignments and organise their own tutorials.

Since that time, QOLN has had to respond to a rapidly changing environment. Globalisation, the move towards a knowledge-based economy, and a loss of jobs in traditional areas have created new requirements for education and training. Experiencing decline or loss of such essential services as rail links, banking and postal services, the regions are lobbying their politicians for “a fair go.” Governments, seeing the potential of ICTs and distance learning, have started to provide more funding for technology infrastructure for rural communities. Sectoral, state and indeed national boundaries are becoming increasingly irrelevant as providers compete or form strategic alliances to gain market advantage. Within such a context, QOLN has had to be responsive to its members and clients to ensure that it is a full-spectrum provider of services relevant to their changing needs and circumstances.

AFFILIATES AND STRATEGIC ALLIANCES

The Network is committed to the concept of “one service – two clients.” On the one hand, its role is to stimulate and provide quality education and training in all communities, regardless of location or population base. To achieve this, QOLN needs to develop alliances with a wide range of local government, industrial, business and community organisations to gain support in establishing, maintaining and managing the facilities and services within the local communities. On the other hand, as a conduit for learning delivery and support, QOLN also needs to develop strong alliances and partnerships with universities, Institutes of TAFE, private training providers, commercial organisations and government departments — not exclusively in Queensland.

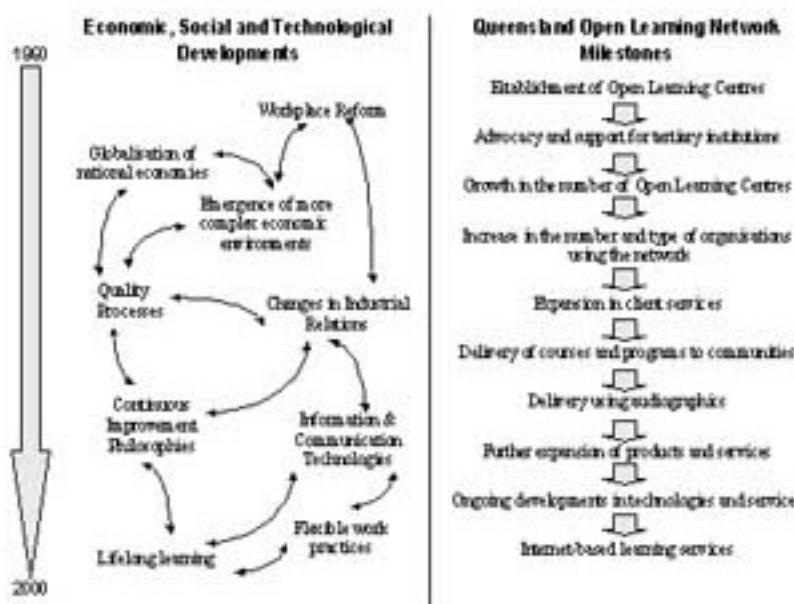
AFFILIATIONS AND STRATEGIC ALLIANCES

The Network has grown and had many successes over the past 10 years, and for all of that time its primary goal has remained unchanged: to expand the scope and range of education opportunities available to communities. However, while this goal may have remained constant, the Network’s products and services have evolved and diversified in response to the significant economic, social and technological developments that have occurred, as well as to shifts that have taken place from once-off, classroom-based learning or training to ongoing flexible learning in the workplace, home or Open Learning Centre (Figure 3.2).

The Network’s initial focus on tertiary education has broadened and its advocacy, support and delivery services are now provided on behalf of many organisations, including private education and training providers, industrial organisations, large businesses, small to medium enterprises, government departments and non-governmental organisations (NGOs).

The Open Learning Centres have always been invaluable for those seeking career information. It is estimated that people now need to contemplate changing their careers up to six or seven times during their working lifetimes. Thus, an initial qualification or grounding in any field is no longer a guarantee of employment, but only the beginning of a journey of lifelong learning. These demands mean that the Network must provide timely and up-to-the-minute career information and advice.

Figure 3.2: The growth and evolution of the Queensland Open Learning Network.



The Queensland Open Learning Network is unique among Australia's telecentre networks in providing the following comprehensive suite of programme-related services to its members and external clients:

- Programme design:
 - conducting needs assessment and designing organisational impact plans
 - developing curricula
 - developing processes for national accreditation
 - identifying options and strategies for programme development and delivery
 - developing programme specifications
- Programme development:
 - sourcing and evaluating existing materials
 - providing access to online and off-line communication and information technologies
 - matching training aims with cost-effective open learning strategies
- Programme delivery and support:
 - training teachers and trainers to develop and deliver programmes using communications and information technologies
 - training administrative staff to support teachers and trainers
 - providing local expert assistance to communities throughout Queensland
 - providing access to state-of-the-art communications and information technologies
 - providing learning materials and resources

- Programme management and administration:
 - developing appropriate systems and processes
 - developing innovation management strategies
 - identifying financial and human resource requirements

Three recent projects and programmes illustrate the Network's approach to lifelong learning: the Plan Your Career initiative, the Tablelands Online Project and Clinical Legal Education.

Plan Your Career

Plan Your Career is an accredited (Certificate II) training programme developed as a stepping stone for women wishing to re-enter the workforce. It is an intervention designed to give women in remote and rural Queensland equal opportunity to develop workplace skills and a greater sense of self-esteem. This programme was designed by QOLN and draws upon two earlier programmes designed to improve access and equity and address the need for empathetic and responsive material for training women.

Planning Your Career has proved so successful that it has been offered in most of the Open Learning Centres over the last three years. It is delivered through a mix of face-to-face meetings, audiographic conferencing, and self-paced computer-based learning modules.

The impact of the programme is captured in the following remarks by students:

The benefits from undertaking the course were more than I ever expected. My self-esteem improved dramatically, even to the point where I decided to join several community organisations.... [T]hrough this decision I have made several wonderful friends.

The course has not only given me the opportunity to undertake university studies, but has given me the self-esteem and confidence to achieve my goals....

Before I started this course, my self-esteem was really down, I was overweight and I thought because of this issue alone I was unemployable back in the type of career I wanted. That was six months ago, now where am I? I am a Sales Executive for a local newspaper and yes, I am still overweight, and I realise that it is not even an issue. The issue is to believe in yourself and your ability and together with the skills you have acquired during your course, you can do anything you put your mind.... [S]tep outside that “comfort barrier” and have a go.



Participants in the Plan Your Career programme.

Tablelands Online Project

The Tablelands Online project helps rural and remote communities to develop knowledge and skills in ICTs and participate in the digital economy. It is characterised by community ownership and involvement, community-based training and support, involvement of government agencies, an action-research development framework, and online training and support. It offers basic education for new users and advanced programmes for those with experience, and it is based on the premise that the advanced learners can support and guide the newcomers in their learning.

Clinical Legal Education

This pilot programme gave Brisbane-based law students opportunities to provide advice on family law to people in rural communities via QOLN's audiographic conferencing system. The initiative gave the students first-hand experience in discussing legal matters with country people, enabled the audience to gain useful information on matters that were of direct concern to them, and facilitated the provision of legal advice in areas under-represented by legal practitioners.

FUNDING

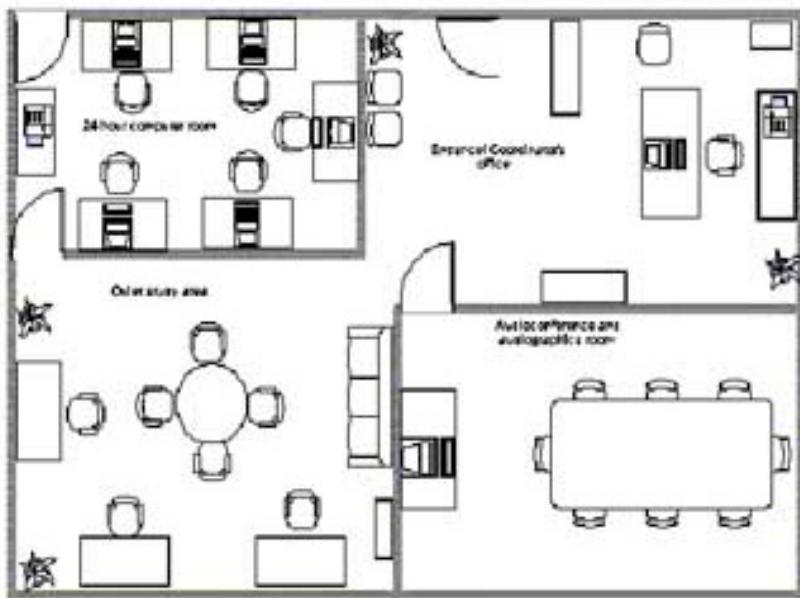
The Queensland state government provides annual, recurrent base-level funding towards the maintenance of the Network. The universities, colleges, businesses, government departments and other organisations and agencies using the Network pay an annual membership fee in return for certain entitlements. The Network contributes significantly to its own operations and improvement through a range of revenue-generating projects. All three funding approaches are essential to ensure that the students can continue to gain free access to learning resources through the Open Learning Centres, that such services as have to be charged out to the communities are done so at the lowest possible price, and that QOLN's products and services are continually enhanced and adapted to changing needs and circumstances.

ACCOMMODATION

Every community wishing to establish an Open Learning Centre must accept responsibility for providing accommodation that is located and set up to be a focal point, easily accessed. In setting up new centres, there is always extensive consultation with the Chief Executive Officers and members of town or shire councils, chairpersons of local organisations, heads of educational institutions, and students within the community to gauge the expectations and requirements of the centre.

The Open Learning Centres are as diverse as the communities they serve. They come in various forms and sizes and are variously located in schools, community halls, ex-service clubs, libraries, courthouses and government offices. The number and size of the rooms also vary considerably, but a typical Open Learning Centre features space for face-to-face learning activities, quiet study, and computing and communications (Figure 3.3).

Figure 3.3: Plan of a typical QOLN Open Learning Centre.



MANAGEMENT

While the Network as a whole is co-ordinated through the head office in Brisbane, the individual centres are managed locally by their Co-ordinators who are responsible for:

- local promotion of network products and services;
- liaison with community groups and individuals to identify and report on learning needs;
- management and maintenance of equipment, resources and services; and
- local bookings and timetabling.

Statewide co-ordination by the head office achieves significant economies of scale and includes such responsibilities as:

- strategic planning;
- promotion of the Network statewide and nationally;
- liaison with government and other funding agencies to guarantee appropriate levels of revenue;
- management of strategic alliances and partnerships;
- management of the growth and expansion of the Network;
- financial management of the Network (including the management of special grants and programmes);
- human resource management for the Network;
- co-ordination of research and development activities;
- management of statewide training programmes and services; and
- management and maintenance of the statewide technology infrastructure.

STAFFING

The headquarters staff in Brisbane comprise a Chief Executive, Deputy Chief Executive, Director of Corporate and Business Services, Director of Learning Services, Director of Technology Services, and Network Co-ordinator, as well as general staff for handling administration and enquiries. Learning Services is considered to be the “engine” that drives QOLN, and consists of instructional designers and other staff who design and develop courses to be delivered throughout the Network. Staff there also work closely with universities and TAFE Institutes to convert face-to-face courses for flexible delivery. Technology Services engages in action research in the design and delivery of appropriate interactive communication technology for use by QOLN’s clients and in training QOLN’s members in uses of ICT. There are 22 staff in the head office and approximately 48 staff in the Open Learning Centres. The Network also draws on the occasional services of academics and open and distance learning providers across the state.

Each Open Learning Centre is managed by a Co-ordinator from within the local community. The Co-ordinators are expected to be “community learning leaders,” providing information on courses, entry requirements, enrolment procedures, study support and technology use. They also arrange teleconferences and social events for the local students, organising graduation ceremonies, encourage local involvement and generally build up local support for their centre within the community. Six “Group Co-ordinators” assist the Co-ordinators with their day-to-day operations and concerns and liaise between the Co-ordinators and the relevant officers at the head office.

TRAINING MANAGERS, STAFF AND USERS

On appointment, the Co-ordinators are involved in an intensive two-day, face-to-face training programme that covers:

- the Network’s philosophy;
- the Network’s products and services;
- the Network’s members and users;
- client service;
- administrative processes and procedures; and
- managing, using and maintaining the technology.

Ongoing professional development for the Co-ordinators is provided through print-based resources, audiographic conferencing and online training. All of the Co-ordinators also convene annually for further face-to-face training which is usually concerned with such issues as new strategic directions, the introduction of new technologies, programmes and services, and means of improving client service and learner support. This event is invaluable for networking and gaining feedback on emergent trends and issues in the various communities.

PUBLICITY

Publicity and public relations are seen as absolutely crucial to the future health and viability of the Network, encouraging community participation, keeping the key stakeholders informed and ensuring that existing and potential funding bodies are aware of the Network’s achievements.

At the local level, each Co-ordinator is expected to promote the Network and its products and services through:

- press releases to the local media;
- presentations to local government, schools and community organisations;
- flyers and brochures;
- open days; and
- induction programs.

All publicity aimed at national or international audiences is co-ordinated through the head office which:

- produces a regular newsletter;
- publishes research reports and journal articles;
- presents papers at national and international conferences;
- organises an international open learning conference in Brisbane every two years; and
- issues national press releases.

ACCESS

All Open Learning Centres provide 24-hour, seven-day-a-week access to learners and other community users. Access is available to registered learners through a key-code system. Local Co-ordinators are available to support learners at set times or by special appointment.

TECHNOLOGY

The increased use of technologies for learning, coupled with the changing needs of learners, has led to new expectations on the part of those who use the Open Learning Centres. Learners expect not only access to the latest technologies and facilities, but individualised support in using these for their studies. The Network has therefore ensured that all learners can have access to individualised and contextualised tuition and support at any time they need it, as well as access to:

- a network of Pentium computers with shared peripherals;
- software applications, including word processing, spreadsheets and databases;
- software and hardware facilities for multimedia learning;
- printing and photocopying facilities;



Clients at an Open Learning Centre.

- a VCR and monitor;
- Internet/Web; and
- phone, fax, audiographic conferencing, audioconferencing and videoconferencing facilities.

In addition, QOLN has an extensive computer conferencing network. It has found audiographics conferencing to be particularly cost-effective for education and training requiring audio and visual components. The audio is carried through the normal phone system using a conferencing service such as Telstra's Conferlink which allows multiple sites to connect simultaneously. The data are connected through the Internet, using a Web browser and a data conferencing program such as Farsite, Netmeeting or Proshare. The Network has its own data bridge, neT120, which can bridge any conferencing programme supporting the international T120 standard.

RESEARCH AND EVALUATION

The Network is acutely aware of the need to ensure that all its products and services continue to meet the changing requirements of its stakeholders and are delivered in timely and efficient ways through state-of-the-art ICTs. It is therefore involved in a range of research and evaluation projects, including:

- evaluating Multimedia Toolboxes that support learning in the vocational education and training sector;
- examining levels of access to, and levels of literacy in, information and communication technologies for university and vocational education and training students; and
- identifying community concerns and needs in adult and community education.

As well, QOLN engages in ongoing self-assessment cycles to improve the quality of its services, and in the continual assessment (through surveys and questionnaires) of learner perceptions of products and services. It is also a quality-assured organisation committed to implementing and maintaining the requirements of AS/NZS ISO 9001:1994. All staff are held responsible for developing, implementing and refining the quality system that is incorporated in the organisation's Business Management System. The Network is now working towards certification under the revised ISO 9001: 2000.

CONCLUSIONS

There is sometimes an underlying fear that the digital revolution will lead to the dissolution of communities and local cultures. However, one should never underestimate the capacity of communities to adapt to change and respond to challenges. The QOLN experience has been that, far from being destructive, new technologies provide a framework upon which communities can build a network of social arrangements for individual and group capacity-building, and that the Open Learning Centres are helping to create learning communities that can share ideas of mutual interest and benefit. Through the work of QOLN, women are erasing loneliness from their lives and acquiring new skills and new confidence; young people are defining their own culture by sharing ideas on music, sport and the pressures of schooling; students are advancing their knowledge and job prospects without being forced to leave their families and jobs; educators are extending their teaching and research through technology; farmers are discussing their problems and sharing solutions online; and genealogists are sharing their family histories.

Also important is the considerable commitment and investment that QOLN has made in researching efficient and effective use of ICTs for education and training. Its staff are involved in developmental projects across a whole range of technologies and applications, often collaboratively with member institutions and organisations. The Network has won much acclaim for its developmental work and services — and it is still set to grow and develop further.

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CHAPTER 4

THE REMOTE COMMUNITY SERVICE TELECENTRES OF NEWFOUNDLAND AND LABRADOR, CANADA

*Keith Sheppard
President, Collaborative Network Technologies Inc.,
Project Manager, RCST*

LOCATION AND CONTEXT

The Remote Community Services Telecentre (RCST) project was originally envisaged as an initiative to develop and test the concept of a wireless multifunction telecentre for rural and remote communities in Newfoundland and Labrador, Canada's easternmost province, with facilities spread across the island portion (Newfoundland) and the northern mainland portion (Labrador).

The island of Newfoundland (united with part of Labrador on the mainland in 1949) is Canada's seventh largest province, covering an area of 405,700 square kilometres (293,400 square kilometres of which are in Labrador). With a total provincial population of 551,700, this equates to a population density of 1.4 persons per square kilometre, and considerably less than in Labrador whose population is about 29,200. The province's population is distributed across several major centres and a large number of small rural communities located primarily along the coastline. This dispersal provides major challenges in the delivery of government services, particularly healthcare, education, and economic development services, to the remoter communities.

The economic base of the majority of these communities is primarily the fishing industry, followed by forestry and mining. The collapse of the northern cod stocks in the early 1990s and the subsequent moratoriums on the stock have had dramatic impacts on many of these communities, including increased levels of unemployment and out-migration. While the fishing industry has recovered to some extent through a focus on other species such as crab and shrimp, many of the small communities are still struggling to redefine themselves economically in the post-moratorium world. At the same time, budgetary pressures on the federal and provincial governments have reduced expenditures on education and healthcare and affected service delivery to these rural and remote communities. For education, this has meant reduced course offerings in many rural schools; for the healthcare system, it has meant reduced staff

resources, reduced access to specialist services, and the closing or downsizing of rural healthcare facilities.

The RCST project represents a continuation of Newfoundland and Labrador's efforts to use information technology to improve service delivery to this widely dispersed population base. Newfoundland's Telemedicine/TETRA (Telemedicine and Educational Technology Resources Agency) facility, part of Memorial University, has been providing telemedicine and tele-education services to the province for more than 20 years. TETRA operates a network that serves more than 150 communities and provides audio and audiographic conferencing services to the health and education sectors and a range of health services at a distance including EEG (electroencephalogram), ultrasound, nuclear medicine and teleconsultation. Kindergarten to grade 12 educational services have been provided to all schools across the province through STEM-Net, the Newfoundland and Labrador educational network, and the Internet. The Enterprise Network, which operated from 1990 to 1996 and used information technology to stimulate and support economic development in rural communities, created and operated Canada's first telecentres in six communities.

HISTORY

The RCST project arose out of a realisation that a multipurpose approach to service delivery was the most effective way to create a network that would be viable and sustainable in the long run. While previous initiatives such as the Enterprise Network had been successful in servicing a specific sector and supporting rural economic development, the single-sector approach was difficult to sustain on an operational basis. At the same time, it was recognised that while the cost of bringing high-speed network services to rural communities was cost-prohibitive for individual organisations or user groups, this could be viable under a shared-facility model. This led, in 1997, to the development of a conceptual model of a wireless multifunction telecentre, the wireless aspect being based on the assumption that satellite and terrestrial wireless technologies would be best suited to communities or regions with limited telecommunications infrastructures.

A working group was established to develop this concept, formed from two Newfoundland information technology companies with their origins in the Enterprise Network. These companies, Futureworks Inc. and Collaborative Network Technologies Inc. (Colabnet), were formed by the former senior executives of the Enterprise Network with the intent of focusing on the application of information technology to rural and remote communities. Working with TETRA, the RCST group formalised the initial telecentre concept and efforts were made to fund development and field trials. While developing the technology infrastructure, the group also made contact with Canada's national satellite company, Telesat Canada, which had been working on a similar model under its Community Centre concept. In 1998, the RCST group was formalised through the addition of Telesat Canada and Industry Canada's Communications Research Centre to the Newfoundland partners. A further partner, QTECH Inc., was added later to provide some additional technology to the project.

By mid-1998, the RCST group had secured funding to begin the development and validation of the initial RCST concept. With Can\$150,000 investments from CANARIE Inc. and Operation ONLINE Inc. (the Newfoundland and Labrador government's agency for supporting the information technology strategy), plans were made for prototype facilities in Ottawa (at Telesat's headquarters) and St. John's (at TETRA).

Once these sites were validated, field sites were to be established in Goose Bay and Nain (both in Labrador). The St. John's, Ottawa and Goose Bay sites were to use satellite technology, while Nain would use traditional terrestrial communications.

While the initial planning and design work was under way, the group was successful in securing an initial investment of Can\$750,000 from the European Space Agency under a reciprocal agreement with the Canadian Space Agency. This allowed all sites to be implemented as satellite sites, and for additional sites to be established in Labrador (at Forteau) and on the island (at Twillingate). Subsequent funding from the federal government (Health Canada, which provided Can\$199,000) and the provincial government (the Department of Health and Community Services, which provided Can\$106,000) allowed for the implementation of yet another site at Port aux Basques. All of these telecentres were operational by March 1999, with the exception of Port aux Basques, which became operational in August of that year.

AFFILIATIONS AND STRATEGIC ALLIANCES

In addition to the national and provincial affiliates mentioned above, the RCST has strong links with a growing number of user agencies in Newfoundland and Labrador.

Each of the telecentres within the RCST network has a specific focus and design that corresponds to the needs of the communities it serves. In all of the centres except Forteau, the primary requirement has been healthcare delivery and in Goose Bay, Nain, Port aux Basques and Twillingate, the primary sites are healthcare institutions. The primary partners and user groups at these sites are the regional healthcare boards, healthcare professionals and community health and health education groups.

In Port aux Basques, Twillingate and Goose Bay, the project has partnered with the federal and provincial health departments to develop and test new approaches to primary healthcare delivery in rural communities, the TEACH (Telecentres for Education and Community Health) project focused on primary care, medical professional development and community health education. This has brought a number of new user groups to these sites, including Memorial University's Faculty of Medicine and the province's Centre for Nursing Studies.

While healthcare has predominated in the initial implementations of the RCST sites, there has also been a steady development of other user demands. Pilot projects are under way with the College of the North Atlantic, the provincial college system, to deliver courses from its Distance Learning Centre into the RCST communities. And, in support of this, secondary sites have been implemented in several RCST communities using wireless technologies. The centre in Forteau has focused primarily on economic development and has built a user base from the business and community development sectors.

The provincial and federal judicial agencies are piloting the delivery of judicial services in Labrador through the RCST infrastructure, while several departments, including Human Resources Development Canada, are participating in a project to deliver a range of government services into Port aux Basques through a community networking trial.

FUNCTIONS

The development and implementation of specific user applications within the RCST project is guided by a formal Application Plan maintained and carried out by the project

team. Given the wide range of potential applications that could be implemented within the RCST, the definition of a set of core applications for the project was felt to have distinct advantages from a management and implementation perspective. The Application Plan, which was completed in the spring of 1999, has since been updated and is maintained on an ongoing basis. The plan gives the project:

- a focus for the application, planning and implementation process;
- a direction for ongoing technical planning, by identifying which facilities and technologies have to be available to support the selected applications;
- a planning mechanism under which potential new applications have been assessed and integrated into the plan for implementation as part of a structured process; and
- a mechanism to identify the resources — human, financial and technical — required in support of the applications.

The RCST has currently implemented 13 specific applications across six areas:

- telemedicine
- tele-education
- government services
- Internet services
- business/community services
- other

These are not intended to be the only applications implemented through the RCST scheme, but they do represent the core set that has been systematically planned, implemented and evaluated. As the service has progressed, additional applications have been added to the plan, based on user demands or the inclusion of new sites and their requirements within the project. Table 4.1 lists the core application set.

Table 4.1: Core applications of the Remote Community Services Telecentre project.

APPLICATION FAMILY	APPLICATION
Telemedicine	Medical data transfer Video consultations Store and forward consultations
Tele-education	Medical professional development Nursing education Post-secondary education
Government services	Judicial services Government kiosks
Internet services	Internet access Web casting
Business/community services	Videoconferencing Telework
Other	Technology demonstrations

Table 4.2 shows the current distribution of applications over the telecentres, although it should be noted that an application may be deployed in additional sites should user demand warrant it.

Table 4.2: Distribution of applications by centre in the Remote Community Services Telecentre project.

APPLICATION	GOOSE BAY	NAIN	FORTEAU	TWILLINGATE	PORT AUX BASQUES	ST. JOHN'S
Medical data transfer	X					X
Video consultations	X	X		X	X	X
Store and forward consultations	X	X				
Medical professional development	X			X	X	X
Nursing education	X	X	X	X	X	X
Post-secondary education	X	X	X	X	X	
Judicial services	X	X				
Government kiosks	X	X				X
Internet access	X	X	X	X	X	X
Web casting	X	X	X	X	X	X
Videoconferencing	X	X	X	X	X	X
Telework				X		
Technology demonstrations	X	X	X	X	X	X

During the initial operations of the RCST, a number of unique and innovative services have been provided to the user communities. Examples include:

- a full-time teleconsultation linkage between the Nursing Centre in Nain and the regional facility in Goose Bay for emergency medical applications (This is used for asynchronous “store and forward consultation,” where the remote medical staffer captures patient data (text, audio, image, video) and uses an e-mail–like software tool to assemble this into a consultation record. This is transmitted to the receiving site where another physician reviews the data and transmits back a possible diagnosis and treatment plan.);
- a provincial government pilot distance course for nurse practitioners in Nain, Goose Bay and Twillingate (Nurse practitioners are nurses who can also perform some of the duties of a physician in rural and remote communities where such a person is not readily available);
- links for Scouts, Guides and other community groups, enabling them to share experiences over the network; and
- links between students in St. John's and their counterparts in rural Newfoundland and Labrador.

One particularly innovative use of the system involved the launch of a new software product designed to encourage school children to consider careers in information technology. The launch was organised from St. John's and Web cast, with the launch site connected to the RCST site in Forteau by videoconference. This meant that as the product was being launched, the students in St. John's could see the students in Forteau viewing the Web cast, and the students in Forteau could ask questions of the group assembled in St. John's.

COSTS AND FUNDING

The total projected budget for the RSCT through to April 30, 2000, was over Can\$2 million. The period extending from July 1998 to April 2000 was considered the research and development phase of the project, and as such there has been no imposition of user fees to date. The project has so far operated with Can\$1.4 million secured from the funding partners, the contribution of satellite airtime by Telesat Canada, and the remaining financing coming directly from the RCST project partners. The long-term operating model is for the RCST to operate as a commercial network, funded through network access fees as well as fees for professional services such as applications development, training and evaluation.

In the original planning documents for RCST, it was assumed that each telecentre would be made self-sustaining as a shared community resource. However, the current business model deals with the financing and operation of all the sites as part of a common network. Two major factors in this change of direction were (1) the emergence of major institutional user groups such as government departments and regional healthcare boards, which could potentially sustain facilities within their communities, and (2) the refinement of the satellite airtime management system to more easily assign airtime costs to specific users and applications. To manage the transition of the RCST network from a research and development initiative to a self-sustaining commercial venture, a number of the project's partners created a new private company, Equidistant Inc., as the vehicle for commercialisation.

ACCOMMODATION

In all of the communities other than Forteau, the primary site containing the satellite earth station is located in the local hospitals or nursing clinics. At the hospital sites in Twillingate, Goose Bay and Port aux Basques, multiple-access points have been created to allow for the delivery of not only clinical services (i.e., emergency teleconsultation), but educational or public access services as well.

The Forteau facility is located in the former Enterprise Network telecentre facility, and has connected several rooms in the facility for Internet access and videoconferencing services. The latest development in the RCST model has been to use high-speed (4 Mbps) wireless technology to expand services to other locations in the community. This has been done primarily to provide a wider range of public access options outside the healthcare facilities and place applications delivery at more appropriate sites (e.g., placing course delivery at the college sites). At the time of writing, this facility had been implemented in four communities:

- *Nain* — wireless link to the Community Centre
- *Goose Bay* — wireless link to the Rural Academic Centre and the College of the North Atlantic

- *Port aux Basques* — wireless links to government offices Human Resources Development Canada (HRDC), the local economic development agencies, the College of the North Atlantic, the public library and some private companies
- *St. John's* — wireless network extension to the offices of HRDC

MANAGEMENT

Overall management of the RCST project is provided by a Management Committee, comprising senior representatives of the project partners, which meets on a monthly basis. Day-to-day project management is provided jointly by Telesat Canada (Mr. Abdul Lakhani) and Colabnet (Mr. Keith Sheppard). The Management Committee is supported by two groups drawn from the project partners: a Technology Team, responsible for the design, implementation and management of the project infrastructure; and an Applications Team that designs, develops and supports the actual user applications. The management process is further supported by two Advisory Committees drawn from key user and service provider groups in the health and education sectors. The Health Committee includes representatives from the Department of Health and Community Services, the Memorial University Faculty of Medicine, the Centre for Nursing Studies, and the regional healthcare boards. The Education Committee includes representatives from the Open Learning and Information Network, the College of the North Atlantic, the Department of Education, and the Memorial University School of Continuing Studies.

STAFFING

Staffing for the RCST project team was drawn primarily from the project partners. The division of labour among the partners is as follows:

- *Telesat Canada/Communications Research Centre* — provides communications infrastructure design, implementation and support
- *TETRA* — provides telemedicine and tele-education application development and support
- *Colabnet* — provides network infrastructure design and implementation and applications development
- *Futureworks Inc.* — provides human systems design and implementation and evaluation
- *QTECH* — provides government kiosk applications

As the project progressed, a number of new staff were added to keep up with user demand, primarily in the applications development and support areas.

The original project plans envisaged reliance on volunteer staff at the project sites and this is indeed how most sites have operated. However, one of the major lessons learned from the project so far has been that demand tends to outstrip the abilities of the volunteers to keep up with the workload. On the basis of such feedback from all the sites, it was decided to secure funding for full-time Site Co-ordinators in each community. The first of these was appointed in late 1999 and the provision of a Site Co-ordinator is now part of the base budget for all new sites. The primary duties of a Site Co-ordinator are to:

- promote the site and its services locally;
- build awareness of the site and its services with the local user community;
- assist the local community with developing new applications or services around the facility; and
- provide support to users of the facility.

TRAINING MANAGERS, STAFF AND USERS

Three specific training strategies have been developed and implemented within the RCST system.

The first of these is a week-long formal training programme that all Site Co-ordinators must undergo before taking over their centres. This programme is delivered at the RCST site in St. John's. It is customised according to the current skill levels of the Co-ordinators, but typically covers:

- standard telecentre technology platforms,
- satellite communications systems,
- community entry and interaction,
- core user applications,
- technical and user support processes, and
- the RCST philosophy and operating guidelines.

The second element is a site introduction or orientation programme for all new telecentres. Once a new centre has been completed and commissioned, a team comprising technical and applications support staff goes onsite to conduct a number of hands-on training sessions on the technology platform and standard applications for the various user groups. This programme is customised for each community. It is based on planning sessions held with the key user groups and always includes a number of open-house sessions where core community groups and the community in general can learn about the services and consider how to initiate new applications within the community.

Third is the specific training or in-service programmes that are provided to address new applications or technology elements as these are introduced into the various sites. These training sessions are carried out on an as-needed basis, face to face or in distance mode over the RCST network.

PUBLICITY

A number of mechanisms have been used to disseminate information about the RCST project on an ongoing basis. A Web site has been established (www.rcst.net) to provide basic information about the project and regular updates on its progress. A monthly RCST newsletter is published and distributed electronically to the user and partner communities. This information is also used to update the RCST project page on the European Space Agency Web site. The RCST prototype sites in Ottawa and St. John's, which represent full working RCST facilities, are another invaluable promotional tool. These have been used for over a hundred technology and applications demonstrations for national and international delegations, including a number from Africa, Asia and South America.

ACCESS

Hours of operation at RCST facilities are typically from 8:00 a.m. to 11:00 p.m. Monday to Friday, with weekend access or applications on an as-required basis. However, while the local partners have made a number of accommodations for access and hours of use, the placement of the vast majority of these telecentre facilities within healthcare institutions has affected the implementation of non-health activities and the public's access to them. This has led to the development of multiple-access points in a number of communities, a trend expected to spread to the other RCST sites and reflected in the design of new sites.

TECHNOLOGY

The design philosophy behind the RCST technical model was to create a platform that was as cost-effective as possible, using off-the-shelf components wherever available. The basic communications technology was an IP-based satellite bandwidth-on-demand (BoD) system located at the primary site in each community. The BoD system allowed for the allocation of bandwidth ranging from 19.2 Kbps to 2 Mbps to each site on an as-needed basis, using a scheduling system that allowed sites to book connections based on applications demand. This model is considerably more cost-effective than traditional satellite systems that require a community to buy a dedicated block of airtime geared towards their heaviest bandwidth consuming application. Under the RCST's BoD model, communities buy only the bandwidth they need for the time slots needed. The BoD model also allows a pool of bandwidth to be acquired and shared among a number of communities on a managed basis, thus providing each community with a higher level of service than it would be able to afford on its own.

Where the RCST network is based on standard Internet protocols, standard Internet compatible devices can be used within the telecentres. High-quality videoconferencing for medical, education, business and government applications is provided by adapting a standard H.323 videoconferencing system (Intel TeamStation) as a standard device in the centres, with specific customisations for individual applications. Each site is also equipped with its own IP-based Ethernet local area network, to which are attached workstations for Internet access or units optimised for multimedia distance education courses. A basic RCST facility consists of a server (UNIX), an H.323 videoconferencing system with medical peripherals for telemedicine applications, a distance education workstation optimised for applications such as MS-NetMeeting and several general workstations for Internet access.

The central network site in St. John's provides for network management as well as access to shared facilities such as the Internet through an external Internet service provider and linkages to external networks such as the national CA-Net II research and education network.

RESEARCH AND EVALUATION

A number of evaluations have been carried out on the RCST project, including a series of baseline focus groups and interviews organised in late 1998 and an interim evaluation in late 1999. To support these processes, a number of tools and techniques have been developed, including protocols for focus groups and key informant interviews, user feedback forms, and statistical analysis of usage data. At the time of writing, the final

summative evaluation had not been completed (being due in late 2000), but the initial feedback from the user groups and service providers has been positive and indicates ongoing support for the RCST service.

A separate evaluation process was conducted with the healthcare community under the aegis of the TEACH project. While this evaluation focused primarily on the delivery of healthcare and health education services, its results again bode well for the full RCST evaluation. Among the significant findings:

- Growth in usage was rapid, from 224 hours of use in August 1999 to more than 1,000 hours by December 1999.
- Ninety-eight per cent of the telecentre clients said that they would use the facility again, and 97% said that they would recommend it to a colleague.
- Eighty-eight per cent of telecentre clients rated the facilities as either “excellent” or “very good.”

CONCLUSIONS

The key success factors in the RCST system to date have been the stability and the reliability of the technology platform, and the flexibility demonstrated in developing and implementing the new applications. The BoD technology has worked very well and has made possible a range of services for the project sites that were not previously available. In particular, the quality of the videoconferencing services being delivered and the ability to adapt this system to handle multiple applications have been major factors in the rapid acceptance of the health applications and expansion into other areas such as video-based lectures and remote judicial services.

The primary limitation has been the lengthy time-cycle required to develop and deliver the new applications. This is mainly due to the need to work closely with both the user groups and the service providers in order to convert services for effective distance delivery. The telecentres were also originally limited by the fact that the video services were point-to-point and that it was difficult to justify delivering college courses to single communities. This was corrected in late summer 2000 when the RCST network rolled out a multi-point bridging facility with the capacity to connect up to six sites concurrently for conferencing sessions.

There are several important lessons in the RCST project that should be considered by any communities looking to establish similar facilities:

- Dedicated local staffing is crucial to successful telecentre establishment. While volunteers can play a major role in building and sustaining a telecentre, there is a need for one individual whose only focus is building use of the telecentre by the community.
- It is important that a formal, structured process be used to define, design and implement new services for the telecentres.
- The applications development process can be expected to take longer than projected.
- The single facility model may work well for sites with a single-application focus, but the access issues associated with the multipurpose telecentre model are better addressed through the provision of multiple access points in a community.

- Even though the RCST model is multipurpose, an initial telecentre establishment should focus on a core application set such as telemedicine or telelearning/training and then use this to build community awareness and demand for additional services.

The RCST experience shows that there will be increasing demand for the use of network technologies to enhance service delivery for and between rural and remote communities. An interesting aspect of the RCST project that bodes well for the future is that, although the original plan for the project envisaged user service demand being the key element in building the service, in fact that demand by service providers across multiple sectors has ended up playing an equally important role in the operation and expansion of the service. The acceptance of network-based service delivery by a wide range of public sector service providers creates an environment in which the establishment and viable operation of telecentres can be easier to finance and justify.

The RCST model was subsequently used as the basis for the Smart Labrador project that is being supported under Industry Canada's national Smart Communities Initiative. This three-year, Can\$11 million project will see the development and deployment of a wide range of technology-based services to more than 20 communities in Labrador starting in late 2000.



CHAPTER 5

THE HUNGARIAN TELECOTTAGE MOVEMENT

*Bill Murray
Small World Connections, UK*

INTRODUCTION

The Hungarian telecottage movement grew out of a community development programme in 1993 in Csákberény, a small mountain community in mid-western Hungary. With assistance from the Democracy Network (DemNet) programme, funded by the United States Agency for International Development (USAID), 31 new telecottages were established in Hungary between 1997 and 1998. The country now has more than 150 telecottages and there are plans for about another 50 and up to 600 satellite offices. The telecottages are an integral part of the Hungarian government's approach to providing rural communities with access to government information and services in and with an opportunity to achieve local economic regeneration. They are seen as having great relevance for other central and east European states coming to terms with new economic conditions and are already being copied in some of these countries. They may also provide useful examples for developing countries across the globe.

The information presented in this chapter is based on data gathered from Teleház Kht, the Hungarian Telecottage Association (HTA), and personal observations made by the author during meetings with Hungarian government officials, sponsor organisations, officials of the HTA/Teleház Kht and telecottage managers and staff and visits to some of these centres. The assessment is also informed by the author's involvement with the development of, and research into, telecottages in the UK (Murray and Cornford 1995, 1999) and recent study of the development of telecentres elsewhere in the world (Murray in press).

LOCATION AND CONTEXT

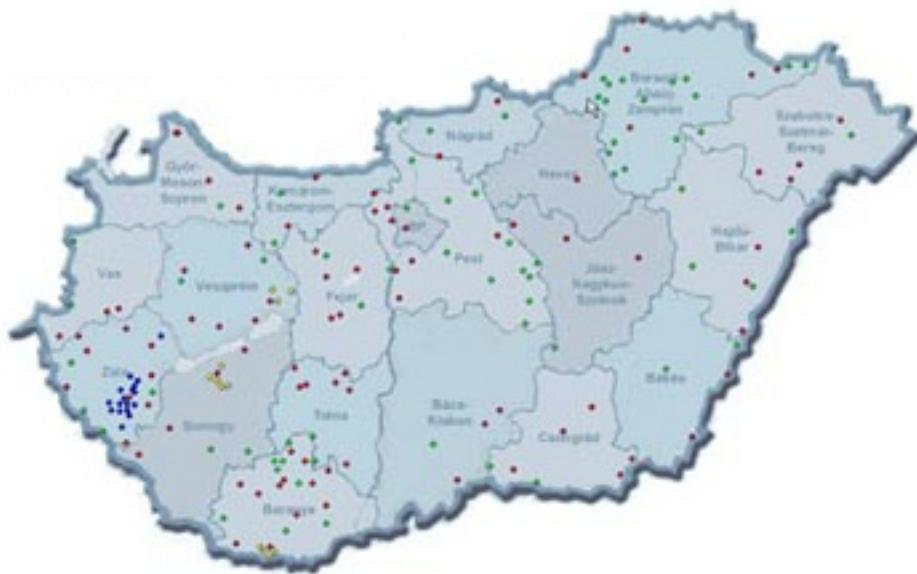
Hungary has a large number of very small villages, of which about 1,800 have fewer than 1,300 residents and 2,500 have fewer than 3,000 residents. These communities are poorly provided for in state and public service delivery, educational institutions, retail and business services, and job opportunities. Consequently, although telecottages have been established all over Hungary, they are mostly located in these small towns and

villages lacking the critical mass for economic provision of such services by conventional means.

The initial optimal scenario of the HTA was that within five years, 500 to 800 telecottages would blanket the country, connected to about 1,000 to 1,500 satellite offices (units with a few computers and a telephone line, accessing the services of a nearby telecottage electronically or by other mechanisms). These projections have since been reduced to about 200 telecentres and 600 satellite offices. The map in Figure 5.1 shows the distribution of these centres.

Telecottages bordering neighbouring states such as Romania and Serbia have been promoting and assisting in the development of telecottages in these countries, and especially in areas with native Hungarian speakers.

Figure 5.1: Telecottage map of Hungary, May 1999 (source: www.telahaz.hu).



HISTORY

Hungary is a country that is currently trying, with some success, to re-integrate itself into the European mainstream. In so doing, the country faces numerous economic and political challenges. It was not the ideal environment in which to prove the viability of multipurpose “Nordic” telecentres on a large scale. Yet, the Hungarian telecottage movement has managed to achieve a sustainable nationwide network of centres. Bihari and Jokay (1999) state that this was due to “the help of some American foreign aid spent the right way, and with the help of some highly dedicated citizens, the initiators of a civic movement determined to make a change. It would most definitely not have happened without them.”

The Hungarian telecottage (or teleház) movement had a false beginning when Hungarian librarians thought of using the experiences of Nordic telecottages as a basis for modernising and extending library services through the establishment of “teleservice centres,” targeting small communities in the rural and remote areas. These initiatives only resulted “in several articles, a publication that ended up being very useful ultimately, as well as a telecottage that closed in 1994 after only a few months of operation” (Bihari and Jokay 1999).

However, in 1993, in the small mountain community of Csákberény in mid-western Hungary, the telecottage idea was resurrected as part of a community development programme. The inaugural telecottage, which still exists, provided an office and access to information, computers and telephone and fax services, and was used by local businesses and for local community events. This community initiative involved local volunteers as well as financial support from the local government, the business sector and, at the national level, the Welfare Ministry. The key difference between this and the earlier library telecentres was that the local Csákberény community became stakeholders in the project and understood its purpose.

At the end of 1994, 15 librarians, computer specialists, sociologists, journalists, public administration experts, village developers and other individuals interested in the potential of this approach established the HTA. The HTA's goal: "to turn Csákberény's initiative into a national movement by encouraging the establishment of more and more telecottages, representing their interests and supporting their needs as a network, as well as by seeking resources on their behalf" (Bihari and Jokay 1999).

Progress was slow over the next two years, despite a variety of promotional initiatives and the development of a publication on HTA activities. The turning point came at a conference organised by the association in 1996 when it won the support of the USAID-funded Democracy Network (DemNet) and the Office of the Prime Minister. As a result of this support, 31 new telecottages were established between 1997 and 1998. Now there are more than 150.

AFFILIATIONS AND STRATEGIC ALLIANCES

Although each telecottage is an independent entity, its assets are normally owned by a local non-governmental organisation (NGO) and its office space, personnel and financial resources are contributed by the local government (largely through contracting out of public services). In some cases, the telecottage is based in a local library, school or community centre. The telecottage operator can be the NGO, a private company or an individual taking out a contract with the owner.

The following organisations have been primary supporters of the National Telecottage Programme and/or local telecottages:

- central government
- Hungarian Telecottage Association
- Hungarian Post Office
- United States Agency for International Development (USAID)
- United States Department of Labor (USDOL)
- Democracy Network (DemNet)
- Hungarian British Embassy
- The British Council
- British Know-How Fund
- European Union Delegation, PHARE
- Soros Foundation, Hungary
- Microsoft Hungary
- Matáv (Hungarian Telecom)

- Elender (an Internet provider)
- Mikro Volán Elektronika Rt.
- Santa Cruz Operations

FUNCTIONS

Being based on the Nordic multipurpose telecentre model, the Hungarian telecottages aim to provide a wide range of functions to a broad community of users. Some are more commercially based than others and some specialise in certain applications such as information and communications technology (ICT) training. However, the telecottage movement has at its core the idea that local telecottages can have a strategic role in aiding NGOs, local governments and local businesses in order to:

- promote better information delivery;
- enhance local economic development; and
- facilitate improvements in the provision of local government services.

The National Telecottage Programme aims to widen the spectrum of available networked services by working with government and business partners and contracting to:

- generate micro-regional and local economic development programmes;
- provide social services, child welfare and support for village caretakers;
- provide general access to public administration and transmit official business;
- establish connections to distance working networks and organise an internal distance work systems;
- gain access to, and maintain, a public information system through distance work;
- turn small post offices into telecottages; and
- convert small libraries into telecottages.

The telecottages cover a portion of their operating expenses by contracting with government agencies and serving as micro-regional programme management centres, initiating development proposals and collecting regional development information. Many centres also provide support to their local communities by applying for international, national, regional, county and local grant funding. Sometimes this service is offered for a fixed fee, but more often it is linked to a percentage of the funds awarded.

Telecottage offices and desk space are offered to a wide range of local clients, including distance workers, village caretakers, village managers, regional development managers and NGOs (including vineyard co-operatives).

Training is a major focus of telecottages and some of the centres are actually located in local schools. In such centres, computer and telecommunications facilities are made available to students and teachers at pre-arranged times. But even when the links are not so strong, students and teachers will use telecottage facilities to make up for the lack of similar equipment in the schools. As well, ICT training for local citizens and businesses is often provided as part of national and regional training programmes.

As the number of telecottages grew, it was recognised that it would be beneficial, not least for promotional and quality control purposes, to have a standard definition of what a telecottage was and the minimum level of services that could be expected from such a centre. Consequently, the HTA set minimum standards expected of agencies wishing to

use the name “telecottage,” defining the standards in terms of “operational characteristics” and the “basic services.” These standards are now applied in determining the eligibility of bids during calls for proposals and in evaluating performance of telecottages.

Each member telecottage should provide:

- public benefit and societal oversight;
- open services that constantly adapt to serve the community’s changing needs;
- a community space and public forum;
- public services for everyone;
- responsible, independent, competent management and services;
- modern information and communications technology;
- headquarters and a service centre for NGOs;
- co-operation and assistance in arranging official matters;
- Internet access;
- e-mail;
- public interest information;
- local advertising;
- local news;
- office services;
- use of computers and multimedia; and
- computer games.

The telecottages are also encouraged to develop additional services relevant to local needs and economic conditions. A recent survey of services offered identified a wide variety of applications, including:

- advertising
- agricultural information services
- alarm monitoring
- babysitting
- bookkeeping
- business brokering
- computer access
- computer use consulting, technical advice, repair and maintenance
- copying services
- desktop publishing
- education and training
- employment services
- assistance with seeking grants
- Internet services (business brokering, e-business, home page programming and maintenance, local Internet service provision, etc.)

- equipment loan services
- local area development services
- local media services
- local phone book publishing
- local radio broadcasting
- office and other space leasing
- newspaper reading room
- public administration tasks and advice on official matters
- photographic and video services
- postal services
- programme management and headquartering for regional economic development initiatives
- public e-mail services
- public information services
- second-hand book sales
- snack bar, coffee-house and tea room operations
- social activities
- special events organisation
- carpool and other transport services
- tele-administration
- telebanking
- teleshopping
- tele-education
- telephone answering services, message forwarding, call centre operations and fax services
- telework assistance
- tourism services
- translation services
- computer equipment sales
- word processing and documentation services
- videoconferencing
- youth services

COSTS AND FUNDING

The critical financial support (about US\$1.5 million) for the establishment of the first 31 telecottages in the years 1997 – 1998 came from the USAID-funded DemNet competitive grant scheme launched to help promote the speedy development of new telecottages and heighten general awareness of the possibilities of such centres. Concurrently, the Office of the Prime Minister offered to support the telecottage movement within the framework of its national modernisation programme. The HTA was asked to develop a concept for

a National Telecottage Programme and the Prime Minister's Office committed itself to a grant to support the implementation of the concept. A key part of the approach was the idea of using telecottages in the public administration process. Support was also gained from Matáv, Hungary's largest telecommunications firm, the first of a number of commercial sponsors of the National Telecottage Programme.

The Telecottage Public Purpose Corporation was founded to run the programme. This corporation is 100% owned by the HTA and has a supervisory board that includes representatives of the relevant government bodies.

The capital cost of establishing a telecottage is typically US\$15,000 – \$20,000. The annual operating costs are of about the same order. The HTA always argued that initial support would be necessary for the first two years of the telecottages, after which it should be moving towards a funding regime based on four main revenue streams:

- fees for local services (office services, local media, education, retail, etc.);
- grants and grant competitions (donations, organising events);
- business brokering through the network (trade through the network, financial services, distance learning, distance work); and
- provision of state and local government services based on contracting out (social services, regional development, assisting official business, public interest information dissemination).

Some telecottages receive "wage subsidies" from county labour offices, job creation grants, block grants from local governments, as well as in-kind cost-sharing from the local mayor's office.

ACCOMMODATION

It cannot be said that there is really a typical Hungarian telecottage. The telecottages come in a variety of sizes and are located in many different types of buildings — from single rooms within schools and other buildings to purpose-built telecentres. The following examples are based on some of the telecottages that the author visited in September 1999. They do not define the totality of Hungarian telecottage accommodation, but do give an idea of the types in common use.

Community centres and village halls

Local community centres offer an obvious location for community-focused telecottages. The local community is accustomed to accessing these centres which are normally located close to the village centre. The operators of the telecottage can look after the bookings and organisational arrangements for the community activities in the centre and can promote such activities through newsletters, etc. Facilities such as kitchens and administration offices can also be shared.

In one village visited by the author, the "satellite teleház" was based in a room previously used as a small local library. The local authority paid for the part-time manager who worked in the centre four hours a day with some assistance from community volunteers. The community centre in which this teleház was based had been derelict for some years. It was then rebuilt with local voluntary support.

Another telecottage was based in a village hall that had a large function room (for weddings and similar events), and a number of smaller meeting rooms. The telecottage had one large public access computer room and a smaller room used as its office. It shared the entrance with the village hall and its staff looked after the administrative arrangements for the hall. A commercial company (a husband-and-wife team) ran the telecottage and also operated their own business from the centre. The next stage of development was to open up the second floor of the building under a contract to provide library services.

School premises

One of the telecottages visited had originally rented a room from a local Youth and Fitness Club but had then moved into a semi-derelict building in the grounds of the local infants school. Most of the users of this centre were originally the children and their teachers, but other members of the community were beginning to use the telecottage more. The telecottage had a public access room, an office and a small refreshments area. Its main function was to be a “civic incubator,” assisting local community groups in bidding for funding and completing official forms. The centre’s one full-time manager and seven volunteers also provided computer maintenance, sales services and some desktop publishing. A local cable company employee also used the telecottage as an office. A local executive board had overall responsibility for the telecottage, and the telecottage manager reported to the president of the civic organisation.

Purpose-built telecentres

One telecottage visited was in a brand new purpose-built structure. Compared to other telecottages, this had the most up-to-date equipment and office furniture and an impressively sized public area with access to a kitchen. The administrative offices also included workplaces for a local agricultural advisor and local employment officer. The main purpose of this telecottage was to provide the community with access to a range of government services, and reports on operations were reported through the office of the local mayor.

Village houses

The original telecottage at Csákberény is based in a small traditional Hungarian village house tastefully converted into a small community telecottage. It is located on one of the village streets and provides facilities for access to computers, printers, fax and the Internet. Only a small number of people can use this facility at any one time but it has a wide user base within the community and is kept fairly busy.



The first Hungarian telecottage in Csákberény.

In a more remote rural area of Hungary, one village has a larger, more modern house that has been converted into a telecottage. This is used primarily as an ICT training centre (mainly for students and their teachers, but also for other villagers) and for agricultural biodiversity training courses. This telecottage consisted of a large public access computer room, a meeting room and an administrative office. At the time of the author's visit, it had one member of staff (a conscientious objector who was performing community service rather than joining the army), a part-time "entrepreneurial manager" funded by a small local government grant, and a team of 15 volunteers.

Three years previously, the village had had only one telephone line into the local post office. At the time of the author's visit, there were 400 lines and an ISDN line (high-speed communications network) into the telecottage. The telecottage had plans to increase its training activities. It was also producing a local newspaper for the 7,000 people in the nearby communities, and it planned to promote local organic agricultural produce via the Internet and through locally produced advertisements and promotional literature.

MANAGEMENT

The Hungarian Telecottage Association

When the HTA was established in 1994, its intention was to encourage the establishment of more and more telecottages by representing their interests nationally, by supporting their needs as a network, and by seeking resources on their behalf. The HTA has been extremely successful in this regard and in providing local telecottage managers and organisations with guidance and advice on establishing, funding and running telecottages. The HTA's main goal is "to assure the best conditions for the network and the services to expand, to make telecottages sustainable over the long run, to guarantee a high level of operating quality and to preserve their community-based origins and character." Although the HTA relies on local groups to set up the telecottages, it can try to ensure, through its control of telecottage funding allocations, that the local telecottage plans, operational systems, financial and legal structures and staffing are capable of meeting the local aims and objectives. Regular conferences and workshops are run by the HTA to assist in this process and a training programme for managers and their assistants is being developed, as described below.

The Telecottage Public Purpose Corporation

The HTA's operations are conducted by a 100%-owned separate legal entity, the non-profit Telecottage Public Purpose Corporation. This organisation handles all issues related to the expansion of the network and its services, and all services provided to telecottages or to the Association. The Telecottage Programme Office and its five contractors and full-time thematic programme managers provide a continuous array of diverse services. The Public Purpose Corporation develops grant competitions, manages training and development programmes, maintains and develops the telecottages' home page, operates a monitoring system, conducts public relations activities, prepares publications, maintains international contacts, and does just about everything else that the Association and the network may need.

STAFFING

As shown in the example above, the managers of the centres are recruited from a range of sources and can be part-time or full-time. Most centres operate with one to two contract staff. Their assistants are most commonly volunteers from the communities, and the number of volunteers per centre ranges from 8 to 30.

TRAINING MANAGERS, STAFF AND USERS

The rapid increase in the number of telecottages and the utilisation of the network by the state agencies, local governments, NGOs and private sector have convinced the HTA of the need to ensure quality services, reliability and stability in the network. There is seen to be one essential element for this: training for telecottage leaders and employees. Up until now, this training has been on the job, performed alongside everyday tasks and responsibilities. The HTA is now developing what it calls a Programme and Methods for Development and Introduction of Telecottage Manager Training as an integral part of its National Telecottage Strategy.

Once this programme has been fully developed, it will form part of the framework of telecottage quality assurance. Telecottages wishing to apply for HTA-administered grants and to use the Teleház Kht telecottage name will be required to ensure that their employees are trained to HTA standards. The HTA is working closely with telecottage colleagues in the UK to export aspects of the National Vocational Qualification for telecentre managers who received formal recognition in the UK in January 2000. (For further information on this, see Chapter 18.) Training materials are also being developed for telecentre management training under a European Union Leonardo-funded project (LocalNet) in which the HTA is a partner. This training will rely on a significant amount of online tutoring and a competency-based assessment methodology. Managers and their assistants will receive technical, managerial, business, financial, marketing and community-focused training. Some telecottage staff will also learn training skills so that they can in turn provide further training for the local staff, volunteers and users.

PUBLICITY

The HTA has been very active in promoting the concept of telecottages within Hungary and publicising the successes of the Hungarian telecottage movement internationally. It organises annual conferences and invites international speakers and senior national officials to these. It produces a number of books and leaflets in Hungarian and English (as well as some in Bulgarian, Croatian and other neighbouring languages). It also uses press and TV coverage to help raise the profile of the telecottage movement, and it has its own Web site (www.telahaz.hu).

One of the HTA's most ambitious publicity initiatives has been the production of a documentary film, *Our Telecottage*. The HTA saw need to use the mass media to raise public demand, encourage further civic initiatives, inform potential donors and public officials, and advise authorities and communities in other countries about the potential of telecottages, drawing upon the Hungarian experience. It gained sponsorship from the Hungarian mission of USAID for this project. The film presents an overview of Hungary's telecottage movement and its role in combatting rural out-migration, unemployment and social alienation by providing villages and country folk with opportunities that city-dwellers take for granted. Through case studies, it shows what telecottages are and what they are good for, how to establish a telecottage, the role of

civic organisations, the communities' reactions to the telecottages, and the future prospects for the telecottage movement.

The HTA is happy for this film to be freely distributed for non-profit purposes so long as appropriate credits are given to its production staff and sponsors. The HTA plans to produce versions of this film in Bulgarian, Croatian, Polish, Romanian, Slovak, Ukrainian and other languages.

ACCESS

The centres are open for 41 to 48 hours per week and the vast majority of the centres also open at other times on demand.

TECHNOLOGY

Provision varies from centre to centre, but according to 1999 data, centres tended to have five to seven computers, three to four CD drives, one colour printer and one black-and-white printer, one to two phone lines, a fax and a photocopier. Most also had modems for Internet access. Roughly 40% of the centres had scanners, TVs, VCRs and 27% had video cameras. Only 13% of the centres had ISDN access, but this was expected to rise to 35%.

RESEARCH AND EVALUATION

The HTA has implemented a Telecottage Fact-finding, Monitoring and Evaluation System as part of the process of defining the National Telecottage Strategy Concept (HTA 1999). This study has provided an overview of the types of telecottages and the services they offer. It has proven to be invaluable in convincing government and commercial sponsors of the benefits of supporting the Hungarian telecottage initiative. It has also been of great value as a source of advice and guidance to new and existing telecottages and as input to the plans for the national telecottage managers training programme.

CONCLUSIONS

Several factors have been critical to the development of Hungarian telecottages. One has been the special relationship between telecottages and the NGOs. Another has been that this was a grass roots movement based on local community needs and initiative. At the same time, it was recognised from very early on that the community groups needed the assistance of a professional national network or association to help convince governmental and other sponsors of the opportunities presented. The work of HTA has been critical in this regard. This core partnership has been assisted by the USAID-funded DemNet programme which saw the unique role that NGOs could play in Hungary and made their involvement and the support of local government and/or commercial organisations a funding requirement. The Hungarian government recognised that, to survive in the new global information economy of the 21st century, it needed to encourage and support businesses to take maximum advantage of the Internet and electronic commerce, provide people with the skills to join and take advantage of the information society, and achieve affordable access. It also expected the telecentres to play a key role in this strategy and supported them accordingly. Like all successful undertakings, the movement has also benefited from the involvement of key motivated

local individuals and entrepreneurs with the necessary contacts and powers of persuasion to guarantee the support of local and central government, albeit in return for the contractual provision of government and civic services.

The socio-economic circumstances may also have had an impact on the development of telecottages. The demise of the old communist structures led to a lack of essential services in rural areas, a gap that the telecottages are trying to fill. Such deprivation had also developed a strong tradition of community self-help and resourcefulness to achieve local objectives, an approach that fits in well with the bottom-up development approach of the telecottage movement. In this sense, there may be lessons in the Hungarian telecottage movement for other former Eastern Bloc countries.

Developing countries may also be able to learn from this experience. The approach adopted has been based on a thoughtful assessment of telecentres established elsewhere, particularly in Scandinavia and Australia, but tailored to suit an economy undergoing substantial changes as it attempts to catch up with the more advanced economies of Western Europe. No single telecentre model will be pre-eminent in Hungary. Business entrepreneurs will identify services that can be offered commercially and social entrepreneurs will develop models and funding options for commercially non-viable community services. The very scale and the speed of development of the Hungarian telecentres will result in success and failure. In some cases, the centres may provide a blueprint for large-scale private/public sector partnerships to turn the information-poor into the information-rich. On the other hand, they may turn out to be yet another “heroic failure” in experimenting for social inclusion and technology-led development. Either way, it is an experiment well worth watching — and well worth trying.

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CHAPTER 6

THE WREN TELECOTTAGE, WARWICKSHIRE, UK

*David Evans
Financial Projections Ltd*



The WREN telecottage.

INTRODUCTION

In the UK, the development of community access or community learning centres is a small but important part of the current government's policy of promoting and expanding lifelong learning. There are several complementary funding schemes in operation to create or develop such centres. A £252 million programme funded by the National Lottery is providing support for the establishment of about 700 community ICT (information and communications technology) learning centres. The University for Industry (UfI) programme (www.ufiltd.co.uk), a public/private partnership to provide online learning and boost the competitiveness of business and the employability of individuals (Hillman 1996), is creating a series of Learning Hubs around the country. These are linked to more than 250 Learning Centres and smaller Access Centres in educational, industrial and community locations, marketed under the brand name "learndirect" (www.learndirect.co.uk). Funding is also being provided to equip all public libraries with full Internet access.

All of these schemes are designed to link in with the European Social Fund (ESF) which can be drawn upon for projects in designated priority areas, including adopting electronic networking to improve regional infrastructure, creating employment opportunities and combating forms of social exclusion. Some projects also draw European Union (EU) funding through involvement with colleges, universities, small to medium enterprises, and transnational partnership projects such as Socrates (education), Leonardo (lifelong learning) and the 4th and 5th Framework schemes (deployment of new technologies).

Over the past few years, a number of community learning and community access centres have been established in various regions of the UK, either on a voluntary basis or in partnership with local authorities, educational institutions and other bodies. However, relatively few have worked closely with the growing community networking movement, which takes its inspiration from U.S. community networks such as the Well and Charlotte's Web and the writings of pioneers such as Cisler (1993), Rheingold (1994) and Schuler (1996). Funding has been provided through organisations such as

British Telecom, the BBC and the Department for Trade and Industry, although the level of support has been much lower than in the U.S. (Beamish 1995). A number of inter-related umbrella organisations have been formed to promote community networking in the UK and several national conferences have been held (Miller 1999): UK Communities Online (www.communities.org.uk), established in 1995, led to Partnerships for Tomorrow (www.partnerships.org.uk) and then to Networks Online (www.networksonline.org.uk) and the Making the Net Work Web site (www.makingthenetwork.org.uk).

During this period, the Warwickshire Rural Enterprise Network (WREN) (www.nrec.org.uk/wren) and the National Rural Enterprise Centre (NREC) (www.nrec.org.uk) were actively involved in the establishment of RuralNet (www.ruralnet.org.uk), which is described below. Much of the credit for bringing these developments together must go to David Wilcox (1999). Many of the online developments, however, were the brainchild of Simon Berry, the founder of WREN.

LOCATION AND CONTEXT

The WREN telecottage is located on the National Agricultural Showground at Stoneleigh, which lies between Coventry and Kenilworth in Warwickshire in the UK midlands. This location is incidental but fortuitous. Stoneleigh is the site of a major UK agricultural show that is held every July to exhibit produce, livestock and farm machinery from around the world. Although WREN has no direct commercial or political role in agriculture, it has developed a leading role in the promotion of rural ICT issues and applications.

WREN seeks to stimulate and sustain the rural economy of Warwickshire through links with enterprises, educational institutions and community groups throughout the county. It has active links with the Coventry and Warwickshire Chamber (business and commerce), Warwickshire County Council, local district and borough councils, the Coventry and Warwickshire Co-operative Development Agency, the Women's Business Development Agency and other groups. It encourages the provision of similar resources in other parts of the country and provides a UK-wide advisory, support and consultancy service on rural teleworking and networking.

HISTORY

WREN was established in 1991 by the National Rural Enterprise Centre (NREC), part of the Communications Department of the Royal Agricultural Society of England that manages the Stoneleigh Showground. Additional funding was provided by the Training and Enterprise Council (now part of the Coventry and Warwickshire Chamber) and private business. Two years earlier, NREC itself had been established to help rural communities improve and strengthen their local economies through research, consultancy, information transfer and project work. The current Director of NREC, Simon Berry, had a background in rural agricultural development in Africa and South America and a keen interest in ICT. He returned to the UK to manage the WREN project in 1991, and moved to NREC in 1993, initially as Telematics Manager and, since 1995, as Director. Both NREC and WREN are housed in adjacent buildings and work together closely. Jane Berry, whose background is in communications and small business development, took over as WREN Manager in 1993 and is currently Project Development Manager for a range of NREC projects, including WREN.

From its inception, NREC was active in promoting and deploying ICTs for communication in rural areas. WREN was established in response to research drawing attention to lower levels of ICT skills in rural areas, particularly among women. Since 1991, WREN and NREC have been involved in more than 20 national and international projects, including studies and plans for the establishment of telecentres in Glamorgan, Lincolnshire, Surrey, Cornwall, Yorkshire and Norfolk, as well as in Belgium, Spain, Greece and Germany.

AFFILIATIONS AND STRATEGIC ALLIANCES

Through its partnership with NREC, the WREN telecottage is at the centre of a network of real and virtual organisations concerned with access to ICT, teleworking and the development of rural economies. The most recent manifestation of this is Networks Online, a “network of networks” providing and linking intranets and extranets in the voluntary, public and private sectors to maximise access to information and resources, encourage knowledge sharing, promote online partnerships and help communities build a better future. The partners in Networks Online are as follows.

RuralNet

RuralNet, established in 1996, provides a group working system for grassroots rural development organisations. It provides information and publicizes events, news, experience and good practice. RuralNet content and services form much of the core shared areas of Networks Online. It is based on FirstClass, although currently most users may access it through the Web (www.ruralnet.org.uk).

Development Trusts Association

Development Trusts are independent, not-for-profit organisations engaged in the economic, environmental and social regeneration of defined areas or communities. They build and manage workspaces, provide sports and recreational facilities, run childcare centres and promote community development in a variety of ways across the UK.

Community Action Network

The Community Action Network (CAN) is a mutual learning and support network for social entrepreneurs, people who use the techniques of business to tackle social problems by adding value to neglected community resources. Connected with the Partnerships Online movement, it was formed in 1998 on the inspiration of Leadbeater (1997), and its concept is close to the heart of several current government policies.

Virtual Villages

Virtual Villages is a Warwickshire and Worcestershire initiative partly funded by the UK government's Single Regeneration Budget for the West Midlands, which aims to revitalise villages by assisting local shops, community centres and other institutions to provide additional retail services. Such services can include online shopping order and pick-up, ICT training, Internet access and e-mail, as well as the more traditional marketing of local produce and services. Other organisations with similar aims — for example, the National Association of Farmers' Markets, ICT@Work project and ViRSA, the village retail services support network — also use NREC's and WREN's services.

Action with Communities in Rural England

Action with Communities in Rural England (ACRE) is the national association of Rural Community Councils whose shared purpose is to improve the quality of life of local (and, in particular, disadvantaged) communities in rural England.

People for Action

People for Action (PFA) is a national network of housing associations, societies and trusts in England and Wales committed to empowering local people to take action to improve their circumstances.

Telework, Telecottage and Telecentre Association

The Telework, Telecottage and Telecentre Association (TCA) is the leading UK organisation supporting and promoting the idea of teleworking (www.tca.org.uk). It was formed in 1993 by a group of teleworkers, and publishes the authoritative *Teleworking Handbook* and the monthly journal *Teleworker*. As one of the first telecottages in the UK, WREN was active in TCA's development and hosted its first seminar. The administrative support for the TCA is provided by NREC.

Educational connections

All telecottages have an informal training role and many develop formal links with schools, colleges, universities and other training providers. This role has been greatly helped by the plethora of new entrants into the educational marketplace as a consequence of the growing interest in lifelong and online learning and the various measures that have encouraged education and training providers, community organisations and small businesses to collaborate more. The 1992 Further and Higher Education Act, which turned further education colleges into independent corporations and encouraged them to expand provision through partnership schemes, led to a rapid expansion of educational opportunities. The 1990s also saw growing interest in, and support for, open and distance learning, stimulated in part by Article 126 of the Maastrict Treaty which dealt with education, vocational training and youth and encouraged the development of such systems (Robinson 1996). All of these developments have helped to broaden the appeal of education and training that are not time- or place-dependent and that are provided and supported by different groups.

WREN has always pursued partnerships with local educational institutions, working closely with Coventry University and the Further Education (vocational education and training) colleges in the city of Coventry and throughout Warwickshire. It has also partnered with COTU Ltd (originally the Coventry Open Tech Unit) based at Coventry Technical College in an EU 4th Framework project, and is currently working with Stratford on Avon College on an ICT-at-work project and a scheme to provide ICT for disadvantaged groups in rural south Warwickshire. For a time, WREN also provided pre-Internet network services (WRENConnect) to the British Association of Open Learning and a range of other business users.

As well, WREN offers courses in its own right, providing training onsite or at clients' premises on a wide range of software packages, the uses of ICT and the competitive advantages of the Internet for small business. It uses a "train as you go" approach, tailoring its training to particular individual, business or project needs and offering

programmes ranging from "Build Your Own Network in a Day" to Web page writing. Its programmes can lead to ICT qualifications such as the RSA Computer Literacy award or National Vocational Qualifications in Information Technology (IT) and Business. Through RuralNet, WREN offers an online mentoring scheme using volunteers to provide support to rural groups new to ICT. WREN has also been involved in supporting and delivering national Internet educational schemes such as "IT for All" and the BBC's "Computers Don't Bite."

Such work has resulted in some impressive individual success stories. For example, Kay, who had left school many years ago and had never worked outside her home, came into contact with WREN through a village meeting a few years ago, took a WREN course, and then took an Access course at the local college. This led to her taking a business studies degree at Warwick University and she is currently working towards a Ph.D. while teaching women's studies part-time at the university.

FUNCTIONS

As a telecottage, WREN aims to offer a fully integrated range of services:

- training;
- a computerised workplace;
- business services, business incubation and IT support;
- marketing and sub-contracting; and
- social events and networking opportunities.

Individuals or small businesses can buy as little or as much as they need from the centre, from occasional photocopying to full and ongoing support. Some businesses use WREN as a permanent base, working in the centre, at home or in a mix of locations. Through RuralNet and other projects, WREN also administers intranet systems for group working, as well as access to e-mail through the Internet. A WREN nursery established in 1992 provides childcare facilities on a regular or occasional basis for telecottage users.

COSTS AND FUNDING

WREN's annual turnover is currently around £200,000, most of which comes from projects and commercial services. For its first few years, WREN was heavily dependent on grants from local government and other charitable sources, but these fell from over £80,000 in 1993 to less than £30,000 by 1996. However, within this period, WREN's earnings from other sources rose from £90,000 to over £150,000.

WREN undertakes a variety of one-off and regular business activities for clients, and then ploughs the profits back into community services and facilities. Any deficits are met by the Royal Agricultural Society. The WREN nursery is managed as a separate business and broke even within two years of its opening.

Like most voluntary, educational and community organisations in the UK, WREN pursues grants and project income from EU and UK government sources. Most EU funding schemes require matched funding, which can sometimes take the form of staff time and notional rent, but more usually must be cash from commercial sponsors or partners. Some EU research and development schemes provide 100% funding, but the

European Social Fund administered through member state governments rarely pays more than 50%. Only projects based in those parts of Coventry and Warwickshire within the designated EU Priority 2 zone qualify for such support.

Some UK government support is provided by the Departments of Trade, Transport and the Regions and Education and Employment, but much new project money is now channelled through the New Opportunities Fund of the National Lottery. The latter has supported the ICT learning centres scheme described in the introduction to this chapter, and RuralNet is partly supported by the National Lottery through its Charities Board.

ACCOMMODATION

WREN is housed in a single-storey detached block strategically located next door to the NREC offices. The telecottage itself is designed as an open public workplace with areas that small businesses can rent for private “hot-desking,” an important source of income. The public area is well equipped with computers and other office facilities. The other accommodation comprises a training room capable of accommodating up to a dozen people, two administrative offices, a library, a kitchen and toilet facilities.

WREN has taken care to ensure accessibility for people with disabilities, recognising the particularly important and active role that such persons can play in a telework economy.

MANAGEMENT

WREN is legally a part of the Royal Agricultural Society of England (RASE), a charity with a commercial arm, an arrangement that allows for trading activity through WREN Business Services. WREN’s approach is project-based and Jane Berry describes WREN’s project management strategy as “stacking,” a process that involves running several different projects at once, usually on different life cycles and with different levels of funding. The well-funded projects support the less well-funded ones and make a more than proportionate contribution to the general running costs of the organisation.

WREN works very closely with NREC and receives “small but significant” ongoing support from RASE (Shearman 1999). For its first three years, WREN was guided by a Steering Group representative of local businesses and the community. More informal support came from group meetings of interested individuals and partners. Once WREN’s partnership and client networks were established, this group was disbanded. However, WREN is still responsive to its needs and operates a “can-do” policy introducing new services and facilities as needed.

The internal management structure is flat, and there are weekly team meetings.

STAFFING

WREN has grown from one post in 1991 to three full-time and four part-time staff today, with a further 12 posts in the nursery. It has been successful in creating local employment and makes extensive use, as necessary, of teleworkers, freelance project staff and student placements.

TRAINING MANAGERS, STAFF AND USERS

WREN has no formal staff training policy, but actively supports staff participation in any training activity provided by the telecottage. An important part of WREN's philosophy is the integration of training and work, and work is often subcontracted to freelancers and small businesses that the telecottage has helped to establish, thus developing and continually expanding a local enterprise self-help training network. One example of this is Jan, a grandmother who has set up her own home-based business with support from WREN. She also does occasional freelance work at the centre, leaving her grandchildren in the care of the nursery.

PUBLICITY

WREN publicises its services extensively. It publishes black-and-white leaflets for distribution throughout the county. Well-funded projects such as RuralNet can afford the luxury of printed colour leaflets. As the administrative arm of the TCA, WREN is also able to publicise its activities through TCA literature, especially the *Teleworking Handbook* and bi-monthly *Teleworker* magazine. Both of these publications receive funding through EU and UK Department of Trade and Industry grants and the *Teleworker* also receives support from British Telecom, Apple Computers and the Gulbenkian Foundation.

WREN was an early adopter of the Web, establishing a site in 1993. This site also provides links to the wider range of organisations represented on the Networks Online site. WREN contributed significantly to the Making the Net Work site, and is linked to the TCA site. It also contributes to NREC's rural development portal, Inforurale. There are various mailing lists and conferencing opportunities on all of these sites, notably the RuralNet FirstClass system and the TCA meeting place on WebBoard.

ACCESS

WREN is open from 9:00 a.m. to 6:00 p.m. on weekdays, although there are sometimes evening and weekend meetings and courses. Access to the telecottage's computers, training rooms, Internet access, videoconferencing and general office services is by appointment.

TECHNOLOGY

The telecottage's public workplace area has two networked Apple Macs, one of which has a 21-inch screen for DTP and graphics work, two PCs, a laser printer, colour DeskJet printers and a colour scanner. General office facilities include a fax, photocopier and franking machine, and ISDN (a high-speed communications link) videoconferencing services. The training room has eight networked PCs with Internet access, a printer, an overhead projector and a whiteboard. All computers in WREN and the adjacent NREC have Internet access through a leased 64 Kb line. While WREN was Apple-based in the early years, the current NT network means that staff and clients can use either PCs or Apples. A portable network of up to 10 PCs is also used for training.

WREN staff tend to favour Apple computers and software, although they recognise the necessity of conducting training on PCs. However, server software, graphics and Web design services are undertaken on Apples, and the FirstClass conferencing software used

for RuralNET is also Apple-based, although this is now available for a wide variety of client and server platforms. Training is available on most main Microsoft, Adobe and Lotus packages, together with specialist applications such as Sage (accounting) and Quark (desktop publishing).

WREN is a partner in the RAVAN (Rural Areas Videotelephone Access Network) project supported by the UK Department of Trade and Industry which has installed PC-based videoconferencing facilities in a group of UK telecottages. This association has provided an Intel ProShare system using basic rate ISDN. Through this project, WREN has developed a system of protocols to demonstrate the advantages of videoconferencing to small businesses. However, to date there has not been any widespread take-up of this technology for business purposes, and Jane Berry feels that this is one area where WREN has been less than wholly successful.

RESEARCH AND EVALUATION

Most research into teleworking in the UK in the past decade has found this mode of work to be increasing, although estimates of the numbers of workers and companies involved vary (TCA 1998). Huws (1993) suggests that most teleworking is concentrated in the southeast of England and involves large service sector employers, British Telecom probably being the most prominent example. There are relatively few large employers in rural south Warwickshire and WREN has therefore focused more on the needs of rural businesses, organisations, individuals and disadvantaged groups such as the unemployed and women in rural communities. It also promotes ICT as part of flexible working and transferable skill development rather than promoting teleworking in isolation. After 10 years and many technological changes and advances, WREN still finds supported public access to ICTs to be a vital ingredient in fulfilling such people's needs.

WREN and NREC have been involved in a number of research contracts in the UK and further afield during the past decade. These have included conducting feasibility studies for local authorities and other bodies and research into changing patterns of rural employment. Examples include market research on the establishment of a telebusiness centre in rural Bedfordshire and a preparatory study towards the development of a rural electronic network in North Kesteven, Lincolnshire.

European projects in which NREC has been a partner have included research components. Examples are the RegioNet project, the SARBA (Sustainable Rural Businesses) project (involving use of IT by small businesses in Spain, Greece and Germany), the OffNet project (the neighbourhood office model of teleworking) and work for the EU's former Research Directorate (DGXII) concerning urban-rural links in the UK, France and Portugal.

CONCLUSIONS

The rapid growth and increasing technical sophistication of Internet access over the past few years has been both a help and a hindrance to rural telecottages such as WREN. It has helped by making access to a much broader range of information in all media more widely and easily available, making Internet access affordable for a larger proportion of the population, and allowing telecottages to maintain an acceptable level of technology at a reasonable cost. There are now a great many online resources available in the UK for community groups seeking to establish an online presence for charitable, promotional, educational or other purposes. "Making the Net Work" and "Communities

“Online” are currently the most useful umbrella sites providing links to projects, planning advice and potential sources of funding.

These trends are likely to accelerate in the next couple of years as ADSL (Asymmetric Digital Subscriber Line), cable modems and increased mobile Internet access reduce the cost of a permanent broadband Internet connection and allow for more mobile, flexible access at all times.

However, the growth of the Web has also had a down side. It has, as Jane Berry says, “blinded people to all the other aspects of online communities.” The exciting possibilities of audio, video, graphics and other manifestations of multimedia have led to a concentration on style rather than content. This has had a number of unhelpful side effects. It has encouraged small businesses and voluntary groups to rush into creating eye-catching Web sites without integrating this potentially powerful form of communication into their marketing, development or distribution systems. It has also tended to obscure the very real benefits that can be gained from text-based computer conferencing, intranets, extranets and mailing lists.

Any new telecottage needs a great deal of hard work and commitment from its key staff and a certain amount of luck in its first few years. Start-up support from government or charitable grants is important, but how much is available and the conditions attached to these are not always governed by logic or rationality. Sponsorship and support from the private sector are also important, but serious income-generating activities will become a priority within a very short time. Support for the telecottage and telecentre movement has been forthcoming from a wide variety of funding sources, in particular the UK Department of Trade and Industry and several departments of the EU. However, increasing competition for grants and the complexity of the application processes present problems for small organisations with few full-time staff.

WREN was fortunate in securing substantial grants through the ESF NOW (New Opportunities for Women) scheme at an early stage in its development. These funds cushioned it against cash flow problems and enabled it to maintain the staffing necessary to take on other projects. WREN and the TCA have both been leading forces in establishing and maintaining online communities of interest and membership in national and international networking activities through Partnerships Online, Networks Online and Communities Online. WREN has also benefited in many ways from its location and association with the Royal Agricultural Society.

Over the next few years, WREN plans to continue to “learn by doing,” passing on the benefits of wider public access to ICTs and raising awareness among local businesses, farmers and other sectors of the community. However, the role of telecottages is changing as computers and online access become more widespread in homes and small businesses. The more important task for the centres in the future will probably be in providing open and flexible training, support and guidance, possibly through “virtual organisations and communities” that complement rather than replace the physical spaces where people come to use hardware and locate information. Information and the means to access it will become universally available, a process accelerated by the growth of digital radio and television. But there will still be a need to acquire the skills to make full use of these resources, and people will still want to come together to talk, work and try things out.

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Web Resources

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www.dfee.gov.uk/ict-learning-centres
www.learndirect.co.uk
www.makingthenetwork.org.uk
www.partnerships.org.uk
www.networksonline.org.uk
www.nrec.org.uk
www.nrec.org.uk/wren
www.ruralnet.org.uk
www.tca.org.uk
www.ufiltd.co.uk



CHAPTER 7

THE GASELEKA TELECENTRE, NORTHERN PROVINCE, SOUTH AFRICA

Peter Benjamin

LINK Centre, The University of the Witwatersrand, South Africa

LOCATION AND CONTEXT

The Gaseleka telecentre is in South Africa's poorest province, Northern Province. Gaseleka, which in Setswana means "the place of the chief," is a remote rural area about 80 kilometres from the nearest town, Ellisras, and about 40 kilometres from the border with Botswana. The area is very arid, nearly desert. To get to the telecentre you must go along a 15-kilometre stretch of very bad dirt road and, because it is in an area called Phalala, it is actually known locally as the Phalala Telecentre. The local police station, health clinic and offices of the Departments of Justice and Water and Forestry are nearby.

There are 34 villages surrounding Gaseleka and, according to the 1998 Census, the area's population is 85,000. There are three chiefs in the area. Unemployment is around 60%. Some people have retail or cleaning jobs in Ellisras, where they commute by minibus, or kombi; some work in the government offices in the area; and others, though not many because of the poor soils and aridity, work as labourers in the few commercial farms in the area. There are few local small businesses other than a number of informal shops, or spaza.

HISTORY

Gaseleka was the very first telecentre to be established by the South African Universal Service Agency (USA) in 1998. The USA was established by the Telecommunications Act of 1996 to provide the access to ICT (information and communications technology) services denied to the majority of people by the brutal years of Apartheid. In 1996, 89% of white households had telephones in their homes as compared to 11% of black households. This shocking imbalance clearly required a concerted national effort — and thus the formation of the USA. Since providing a telephone in every household is unachievable for many years, the goal of Universal Access has had to be providing public telephones for all in the country. In 1996, when the importance of computers and ICT was becoming clear, the main focus of the USA's work became the provision of telephones and computers through telecentres.



Computer class, Gaseleka Telecentre.

The USA's first Chief Executive Officer was Mlungisi Hlongwane, who was also president of the South African National Civic Organisation (SANCO), the major community-based group allied to the African National Congress (ANC) which formed the majority in the new national government. In May 1997, the USA advertised itself through community media, mass organisations such as SANCO, and the women's movement, describing its plans for telecentres and inviting communities to apply for support and advice. The key criteria were that the applicants should be in an area without services, able to demonstrate community support for the centre, have an understanding of small business, and be willing to make the telecentre's services available to women and disadvantaged groups. Around 500 applications were received by the August 1997 cut-off date, mostly from community groups but some from individuals. From these, the USA chose the first 30 sites.

Gaseleka was chosen for several reasons. It was in a very remote and poor area. The Northern Province, with the worst access to telecommunications of any province in South Africa, was already a top priority for the USA. The hosting organisation was well respected locally. The application had the support of the local authority, chiefs and community groups. And the fact that the centre would be run by the local branch of Mlungisi's organisation, SANCO, certainly didn't hurt in the selection either.

These first sites for telecentres were decided upon in September 1997. In November, two people from each centre, including Gaseleka, underwent training (as detailed later in the chapter). It took a few more months to finalise the funding and contractual arrangements for the Gaseleka centre, fit out the building and install the equipment. The first time the telephone — the very first in the region — was tested, one of the volunteers was scared by the ring and ran out of the centre. The centre was finally completed just one week before the launch.

On March 22, 1998, Gaseleka became the first of the USA-supported telecentres to be officially opened. The launch was a major event, with 50 dignitaries flown in by plane, chartered by the USA, and 80 less fortunate guests arriving by bus. The then Minister of Communications, Jay Naidoo, was the main speaker at the ceremony, together with the

Premier of the Northern Province, Mr. Ramathlodi. The three local chiefs were shown great respect at the launch. Other “suits” came from Telkom, the parliamentary Communications Committee, and other telecom organisations. And a few thousand people in the region came to hear the speeches, admire the new telecentre and enjoy the huge meal, which included six cows.

AFFILIATIONS AND STRATEGIC ALLIANCES

The Gaseleka telecentre is owned by the local branch of SANCO, which has established a special sub-committee of 15 people to manage the centre. The chair of this committee and the most influential person in the telecentre’s directions, Masilo Mokobane, is an important person in the area, being the general secretary of SANCO, a local councillor and an employee in the Department of Justice. The strength of the community links through SANCO, and particularly through Masilo, have been crucial to the success of the centre.

The centre is well networked throughout the area. All three local chiefs have given their support to the project and close links are maintained with the local government. The telecentre maintains such support by allowing the chiefs and some senior councillors to make free phone calls and photocopies. This usage is monitored every month, and so far has not been abused. This has obviously made the telecentre very popular among these key local officials. And the strategy has paid off in another way too: it receives its water and electricity free from the local authority!

FUNCTIONS

Like many of the other USA-established telecentres, Gaseleka started out by only offering access to equipment. It has since developed various other services according to need and opportunity, and most of these have been led by Masilo Mokobane.

Most of the people still come to the centre to make phone calls, as it is just about the only usable pay phone in the area. Although there is a Telkom card-operated phone near the police station, the nearest place to buy the phone cards is Ellisras, 80 kilometres away. Many people also use the centre for sending faxes and photocopying. The local schools are major users, bulk-copying question papers and reports and typing up curricula, reports and schedules on the computers. Computer training is another major activity.

The centre is currently used on average by 50 people a day, 60% of whom are women. People come from up to 20 kilometres away to use the centre, many on foot. A few kombis ply along the poor main road, but few of the surrounding settlements are served by any form of public transport. Since the telecentre opened, a new RDP (Reconstruction and Development Programme) government housing development has been built nearby. This has brought 300 families closer to the telecentre and means that it has become the de facto community centre, a place to hang out and chat.

Formerly, there was no post office in the area. In 2000, the telecentre successfully applied to become a “postal service point.” A bank of 1,000 post boxes was installed next to the telecentre, and deliveries and pick-ups are usually every other day. The telecentre makes a small amount of money from selling stamps, registering mail and performing similar postal jobs, but really the major benefit is that just about every family comes in regularly to check the post.

Many organisations within the area make use of the centre. SANCO uses it heavily, as do the local schools, Community Policing Forum, Department of Health and Welfare, small businesses and local political groupings such as the African National Congress and the Communist Party.

The telecentre has also arranged for two officials from the Department of Home Affairs to come to the centre every Friday morning to save people from having to go to Ellisras to attend to such matters as applying for identity documents, birth and death registrations, passports and such like. Again, the major motivation here has been to increase the number and range of people coming to the centre, and about 30 people a week now come in just to use this service. The telecentre has invested R4,000 (US\$600) in a camera for taking ID photos and makes about R700 (US\$105) a month from this service alone.

There is no local newspaper or radio station in the area. Many people in the community have expressed a desire for these, and a team was set up to develop the areas's first newspaper, which was launched in August 2000. The more ambitious proposal, to start a local radio station, is currently under discussion. Radio is an important medium in an area with an illiteracy rate of 70%, but this project will take much longer to achieve and will need considerably more funding than the newspaper did.

The real success story of the centre has been its computer training provision. The centre approached Ellisras Technical College, which seconded one of its graduates, Godfrey Gijone Hlongoane, as a full-time computer trainer at the centre. In 1999, Godfrey taught 46 people on the Technical College-certificated Introductory Computer Practice, a course that introduced them to the computer, typing to at least 15 words per minute (some got up to 40 wpm), file management, and use of the operating system, word processing (Microsoft Word) and spreadsheets (Microsoft Excel). The course lasted two hours a day for 15 weeks. The cost was a surprisingly high R1,265 (US\$190), which represented a major investment for the families of these students. Of the 46 graduates, all were under 35 years, 31 were women, and at least 10 have subsequently obtained computer-related jobs, mainly in Ellisras. In 1999, this course represented 55% of the centre's turnover and about 70% of its profit. In 2000, Godfrey was given training by the University of the Witwatersrand to run a more in-depth Information Literacy course at the centre.

Some local businesses use the centre for producing leaflets and advertising. Godfrey also helps some of the local businesses with their formal invoices and payrolls.

The telecentre also supports 34 local students of UNISA (the University of South Africa) and Technikon SA, South Africa's two main distance education providers. Most of these students were encouraged into this mode of study by showing them the UNISA and Technikon course brochures. The telecentre is currently talking to UNISA about its becoming a "learning centre," which would enable it to receive some of the course books for a training library and earn a percentage of the course fees.

The centre went online in May 2000, initially for its own internal management purposes. It is now experimenting with Internet access for the users, at an initial charge of R30 per month. In pursuit of its aims to be multipurpose, the centre also plans to produce business cards, minutes and constitutions for organisations such as burial societies, and to use its television facilities as a mini-cinema for the new housing estate next door. As well, it proposes to become a satellite office of the Department of Home Affairs. About the only thing you can now get free at the centre is condoms, given out over the counter, under the AIDS awareness poster.

COSTS AND FUNDING

The initial set-up costs of the centre, amounting to about R250,000 (US\$35,000), were met out of the USA's Universal Service Fund. All of the running costs have had to be met out of turnover and so far, unlike many other USA-sponsored telecentres which have made little money and been unable to pay their managers salaries, Gaseleka has proved to be financially viable. This is entirely due to the telecentre having strong management, establishing good local connections and trust — and being a local monopoly.

The charges for Gaseleka telecentres services are as follows:

Telephone	80¢ per unit
Photocopying	
<i>for schools</i>	40¢ per page
<i>general users</i>	50¢ per page
Typing and printing	
<i>black ink</i>	R3 per page
<i>coloured ink</i>	R4 per page
Computer use	R10 per hour
Fax	
<i>local call</i>	R3 per page
<i>national call</i>	R4 per page
<i>receiving</i>	R2 per page
Overhead projector use	R20 per hour
ID camera	R30 for four ID photos
Computer course	R1,265

In recent months, the breakdown of income has been as follows: computer courses (36%); phone (27%); photocopying (25%); fax (6%); and ID photos (6%). In an average month in 1999, the telecentre had a turnover of around R8,000 (US\$1,200) and expenses of about R6,000 (US\$860), including the R3,000 needed for the salaries of the three staff. Since its launch, the centre has accrued a bank balance of R42,000 (US\$6,000), which is held in the name of SANCO. The subcommittee is currently deciding how to use this money. It is expected that some will be granted to a women's sewing project and some towards a crèche.

However, in considering these figures, it is important to remember that all the equipment was donated. The profits would not cover these costs if the centre had had to be purely self-financing or to take out a loan for its establishment. While this is the most financially strong telecentre of the first 28 centres set up by the USA, its equipment is about two years old and many pieces are starting to wear out. Service contracts are not available in such a remote area and the photocopier has already needed R3,000 in repairs and may well require more. The photocopying service may have to be stopped if it becomes uneconomic to offer. Also, the nearby library has now started offering photocopying at a lower price (30¢ a page compared to the telecentre's 50¢). This raises the issue of future competition. Currently, the telecentre is the only usable public phone and computer centre in the area. However, with general development in the area, some people are getting phones in their homes and other public phones may be set up. The telecentre has little margin on its phone costs. New commercial services will therefore be needed if the telecentre is to continue being financially successful.

ACCOMMODATION

The telecentre is housed in a standalone face brick building donated by the Department of Agriculture. It stands within the grounds of the sports stadium and is painted in purple, green and white, the colours of the USA. It is composed of one big room (12 metres x 6 metres), a small kitchen and a toilet. The windows and door are fitted with anti-burglar bars.

As you enter the centre, to the left is the counter where the records and management system is kept. In front of you is an island unit with six cubicles for telephones, although only four of these are actually fitted out with phones so far. Further into the room to the left are two islands, each with four cubicles for the computers. At the back of the room there is the photocopier and an area where the staff and others eat their food. Behind this is the kitchen. On the walls, you will see the price list, the plaque commemorating the official opening, a portrait of the country's president and pictures of local dignitaries including the chiefs (all of whom are male) and SANCO posters reminding you of the centre's affiliation.

The red dust gets everywhere. The centre's managers have to sweep the floors every morning and often again in the afternoon. The computers have to be covered with plastic covers whenever they're not in use.

MANAGEMENT

The telecentre is run by two managers. They record all usage in terms of service, frequency, gender of user, and cost of use. They also log the daily expenditure and income. Every month, Godfrey uses a spreadsheet to work out the monthly profit or loss. The monthly statements are sent to the USA. The USA used to have an excellent fieldworker in the province, Aubrey Mathinjwa, who helped out with many things in the early months of the centre. Unfortunately, he left to work for the USA in Johannesburg in November 1999 and since that time the telecentre has had less contact with, and support from, the agency.

Masilo Mokobane, the telecentre's chairperson, usually comes by the centre every day. Informal planning meetings are held almost every week and more formal full committee meetings about once a month to consider the more major issues. However, in practice, it is Masilo who is very much the driver of most new initiatives.

STAFFING

The two telecentre managers are Lettie Manameng Madibeng and Lizzy Kebawetje Mokobane, wife of Masilo. The computer trainer is Godfrey Gijone Hlongoane, on secondment from Ellisras Technical College. This trio works as a team, all earning the same salary. Godfrey is teaching Lizzy and Lettie computer skills. All three see the telecentre as their long-term job and have a strong commitment to the project.

TRAINING MANAGERS, STAFF AND USERS

Lizzy and Lettie have Matric, the school leaving certificate, and both attended the initial five-week USA training course in Johannesburg in 1996. This course familiarised them with the concept of telecentres and trained them in the necessary management, operational and basic computing/Internet skills, as well as in financial management and

customer care. Their final assignment was to develop a full business plan for the centre. Lizzy and Lettie did well on this course and received the special certificate, accredited by the University of the Witwatersrand.

Godfrey has Matric, a Computing Diploma from the Technical College, and now a letter of accreditation from the University of the Witwatersrand stating that he is a recognised trainer on its "InfoLit" programme.

PUBLICITY

The initial publicity for the centre came through the launch, which was a major event in the area.

Masilo and other telecentre staff frequently attend meetings of the school principals, community groups and the chiefs to talk about services and plans.

Recently, a network of telecentre agents was set up. Eight people were selected from various villages to advertise the telecentre, find out what the people wanted and act as links to the centre. These telecentre agents receive a 10% commission on whatever income they bring in. This is still an experiment and is working better in some villages than in others.

ACCESS

The telecentre is open from 7:00 a.m. to 6:00 p.m. weekdays and 7:00 a.m. to 1:00 p.m. on Saturdays. Originally, the centre was closed on Sundays, but since mid-2000 it has been opening on Sundays too. The busiest times are 10 and 11 o'clock in the morning and 2 and 3 o'clock in the afternoon.

TECHNOLOGY

There are six phone lines: four for telephones, one for fax, and one for the Internet. A Pentium computer is used for administration and four other Pentium computers (running Windows 95 and Office 97) for the computer training. Four older 386 Olivetti computers (running DOS 6.22 and Windows 3.1), donated by a local company, are used mainly for typing practice. A peer-to-peer network allows printing from all computers. The modem is currently only used by one computer. There is a Canon BJC4200 black-and-white/colour printer, a colour scanner (Mustek 1200 SP) that is not much used, and an Olivetti JP790 colour printer that is not working,. The photocopier is an Olivetti 8416 that copies both A3 and A4 with reduction and enlargement, but this is old and troublesome. The Canon fax machine works well, but once had to be fixed by a technician in Ellisras. Servicing and maintenance are major problems. It is difficult to get spare parts and, with the nearest



Telecentre students learning computer skills.

technical support in Ellisras, 80 kilometres away, repairing the equipment is both time-consuming and expensive. There is little or no technical support from the original equipment suppliers. Most of the equipment was supplied by a local company that went broke, and the parent company in Johannesburg has given very poor long-distance support. The USA has not been able to offer much support either after Aubrey Mathinjwa left, because Gaseleka is so remote.

The telecentre lacks air-conditioning, which means that — because the area is hot and dusty — the computers have to be under protective covers for most of the time. The electricity supply is good. However, because there was no UPS (uninterruptible power supply) until recently, lightning strikes have damaged a fax machine and a computer.

RESEARCH AND EVALUATION

Daily and monthly financial monitoring is thorough and reported at the monthly management meetings. The committee is proactive in identifying problems and seeking advice from others in the area, but to date there has been no formal local evaluation.

In February 2000, the Gaseleka telecentre was involved in the Telecentre 2000 study conducted by DRA research. The centre was found to be well known in the area and well used. A random survey of 40 households in the wider Gaseleka area revealed that 88% of the people had used the telecentre for making phone calls, 29% for sending faxes, 85% for making photocopies and 23% for typing or using the computers. Most said they were happy with the centre's services. The more detailed results of this study may be found at www.sn.apc.org/community.

In May 2000, Gaseleka was one of six telecentres in the Northern Province involved in community needs research. After some special training in Participatory Rural Appraisal techniques, Lizzy and a member of the telecentre's Management Committee worked for a week with a student from the University of the North, conducting household surveys, organisational interviews and key group interviews. The resultant report had not been completed at the time of writing, but this information will be fed back into a community meeting to see where the centre can better meet local needs in the future. The hope is that this will lead to more informal six-monthly local surveys to measure impact and determine what else the telecentre can do to help people. For further information on this, readers are invited to contact the author at peter@sn.apc.org.

CONCLUSIONS

It cannot be stressed enough that the key variables in the success of telecentres are the energy and commitment of the local owners and managers. Technical skills can be taught; local trust and drive cannot.

A simple telephone shop can be set up from outside. However, a local centre that aims to provide a range of services, information and training depends crucially on local support. Embedding the project in local organisations and systems can be a time-consuming and frustrating process. But without this, any telecentre project is very likely to fail.

So far in South Africa, whether from government, business or external donor, all telecentres have depended upon external funding for their establishment. It is highly unlikely that in rural areas these centres will be able to generate a return on this investment. Gaseleka is one of the very few South African centres making an operating

profit and paying a half-decent wage. But it also has neither to meet depreciation costs nor repay the monies invested in it.

At the risk of stating the obvious, ICTs can only offer useful services if there is relevant information and communication. Despite valiant efforts, Gaseleka has not really been able to serve as an information centre, because most of the information of interest to local people is already known and is delivered by word of mouth. The centre wishes to set up more formalised information systems, such as the community directory developed by the telecentre in Mamelodi, and even a local radio station. However, there is little in the way of local support or organisation for this kind of work. It is here that a national agency could greatly assist by distributing national information for centres to disseminate at the local level, offering guides on organising local information and providing training in information skills.

Centres to support learning, information access and delivery services are desperately needed in rural areas of South Africa and, indeed, throughout Africa. Providing access to technology is necessary if the “digital divide” is not to increase, condemning the majority to increased marginalisation in the Information Age. However, the first wave of enthusiasm for telecentres has certainly been misplaced. Gaseleka is one of the best examples out of the more than 60 telecentres set up by the USA. Over half of these are not functioning well for a variety of technical, managerial, competitive and financial reasons. In the townships, telecentres and phone shops have proved very profitable, but in the rural areas very few have even gone as well as Gaseleka. After three years’ work, no model has been found for self-sufficiency, and one suspects that to be effective in rural areas, these centres will need ongoing financial, technical and managerial support. This can be done more easily if the sites are based where supported infrastructures exist, such as at clinics, schools, libraries or post offices.

We need to be clearer on what these centres are meant to offer. If the focus is simply on providing telephony, there are many easier ways of doing this, such as installing pay phones. If the focus is on supporting information services, then investment is needed more in information than in technology. Projects to find what information is most needed and to codify this nationally or develop mechanisms for local content creation are more important than getting a computer working. If the focus is on skills development and training, then developing courses, course materials and facilitation skills are more important than the technology. As we say in South Africa: if the technology overlooks you and your needs, it is indeed a “TOY.”

But perhaps the last word should go to the person most responsible for the success of the Gaseleka telecentre, Masilo Mokobane, interviewed in March 2000:

Q: How is the Gaseleka Telecentre doing?

A: The telecentre is doing very well even though the profit has gone down. More people are now using the telecentre — more especially because there are RDP [Reconstruction and Development Programme] houses that have been built near the telecentre.

Q: What problems is the telecentre presently experiencing?

A: There is a need for proper marketing because not everybody knows the services that are offered by the telecentre.

Q: What advice would you give to new telecentre managers?

A: The advice is that it is important for the telecentre managers to get proper training, for example in financial management, how to maintain the equipment, how to deal with and handle customers and how to run a telecentre as a business.

Q: If I set up a telecentre next to yours, how will you deal with the competition?

A: I don't have a problem about that. The most important thing is to satisfy the customers and offer a good service at a good price.

Q: What is the future of telecentres in South Africa?

A: Telecentres have a good and promising future in South Africa. Most importantly, there is a strong need for good management, and the other positive thing is that telecentres create employment for people that were unemployed before. The other important thing is that people now have access to technology and information.

Q: How do you see the future of Gaseleka telecentre?

A: The telecentre can still do much better because, up until now, there has been no competition. More services will be offered and, as a result, the telecentre will make more money and maybe employ other people in their community.

The author would like to thank Masilo Mokobane, Lettie Manameng Madibeng and Lizzy Kebawetje Mokobane for their comments on this chapter.



CHAPTER 8

THE KITIMAT COMMUNITY SKILLS CENTRE IN BRITISH COLUMBIA, CANADA

*Norbert Hartig
Manager, Kitimat Community Skills Centre*

LOCATION AND CONTEXT

The Kitimat Community Skills Centre is located in Kitimat, a community of 12,000 in the northwest corner of British Columbia, about 1,000 kilometres north of Vancouver and 500 kilometres west of Prince George. It is in a valley that is surrounded by high mountains and is situated at the head of the scenic Douglas Channel, which leads to the Pacific Ocean. It has a typical northwest climate with a heavy rainfall and some of the highest snowfalls ever recorded in Canada. Kitimat actually means “people of the snow.” More than 50 different ethnic groups are represented in the community, which has one of the highest per capita incomes in Canada. Most of Kitimat’s workforce is employed by the three major industries within the district, Alcan Aluminum Smelters and Chemicals, Eurocan Pulp and Paper, and Methanex Chemicals. The community was established by Alcan in the early 1950s, close to the site inhabited for hundreds of years by the Haisla First Nations people. The company was drawn by the opportunities for plentiful hydroelectricity and a deep-water port on the Douglas Channel and decided to establish an aluminum smelter in the area. Training and education have always been important to Alcan in the development of its workforce and, subsequently, for Eurocan and Methanex as well.

HISTORY

The Northwest is relatively isolated from Vancouver, Victoria and British Columbia’s other major urban centres. A small campus of the Northwest Community College, an institution that provides college centres in communities in the Pacific Northwest region, was established to serve Kitimat, Kitamaat Village and Kemano in 1976. The college’s primary focus, however, has always been on community education rather than on industrial training, and it really lacked the resources to provide training for the industrial workforce which, by the 1990s, totalled more than 3,000. Much of the training for local industry had to be provided by bringing in trainers at very high cost from Vancouver or elsewhere in Canada and even the U.S. The alternative was that the trainees had to be sent out of Kitimat to various training institutions, workshops and seminars throughout North America, which was also a very costly proposition.

In 1992, the Northwest Community College began to put in place a distance education system to link its six campuses and four community education sites throughout the Northwest. Up to this point, much of its education and training had been offered at a centralised location and trainees had had to drive for hours, often in adverse winter conditions, to attend their classes, workshops and seminars. The new vision called for training to be brought directly to the client. The college lacked the financial resources to provide face-to-face instructor-led training at these remote centres and it was therefore envisaged that distance education could provide the solution.

To explore this new model of provision, initial contact was made with the three industries in Kitimat and a series of hands-on workshops and demonstrations were organised to showcase the educational technologies available at that time — satellite-based talk-back TV, interactive multimedia and audioconferencing. There was strong interest in the possibility of accessing high-quality training delivered directly into Kitimat by external experts via such technology. Support was especially strong from the engineering, technology and supervisory and management groups. In the wake of these workshops and demonstrations, it was agreed to proceed with a needs analysis and exploration of possible partnerships.

It was decided not to change the status of the college campus itself, but rather to approach the Open Learning Agency, the internationally recognised Vancouver-based provider of flexible lifelong learning and workplace training systems, and seek their support and expertise for the development of some form of technology- and workplace-based training centre at Kitimat. The Open Learning Agency saw great merit in the proposal and agreed to partner such a centre. Contact was then made with the various federal and provincial government organisations, industries and community organisations identified as potential clients for such training: Alcan, Eurocan, Methanex, the Canadian Auto Workers' Union, the Pulp and Paper Union, the City of Kitimat, the Kitimat Chamber of Commerce, Kitimat School District #82 (Coast Mountain), Haisla First Nations, Human Resource Development Canada, and the B.C. Ministry of Advanced Education and Training. This needs analysis demonstrated overwhelmingly these organisations' lack of access to training and preparedness to make a strong financial commitment in support of the new initiative.

Through the Open Learning Agency, contact was then established with the provincial government of British Columbia. At that time, the government was launching its Forestry Renewal Funding scheme, a partnership of forestry companies, workers, environmental groups, First Nations, communities and government to ensure that stumpage fees and royalties paid by forest companies for the right to harvest timber on Crown lands were reinvested in the forests, forest workers and forest communities. The provincial government pledged to support the project and provide funding for the establishment of what was called the Kitimat Community Skills Centre. Additional support was obtained from the District of Kitimat which pledged to provide a new building for the Skills Centre. In total, Can\$650,000 was obtained from these federal, provincial and local sources towards the start-up costs.

With the funding in place, and with the full support of the local industry, unions, business organisations, educational institutions, First Nations, and provincial and federal governments, the Kitimat Community Skills Centre was able to proceed and was incorporated on August 17, 1994.

The Skills Centre was conceived as a non-profit society, operating on a cost-recovery basis and becoming fully self-funding after five years. Its mission was to "ensure the

competitiveness of Kitimat industry and its workforce through the provision of training which meets the requirements of industry, the employed workforce and those within the community requiring training and upgrading prior to employment.” As well, the Skills Centre would “serve as a mechanism for identifying industry and community needs and ensuring the co-ordination and integration of available and new resources in the development of initiatives to meet them.”

Thus, the Kitimat Community Skills Centre came into being, responsible for its own facility design, technology allocation, programme provision, marketing and staffing. It went on to become the prototype for the other Community Skills Centres throughout British Columbia.

FUNCTIONS

The initial needs survey indicated that the Skills Centre had to provide:

- basic skills upgrading for the local industries’ workforce;
- trades training and upgrading;
- occupational health and safety training for industry;
- training in management and personnel development;
- technologist upgrading, specifically in electrical engineering and computer technology;
- general computer training;
- professional development for teachers;
- emergency and fire services training;
- language training (French, English and Spanish);
- small business development;
- recruitment and human resource support for Alcan; and
- employment services for Human Resources Development Canada.

It was always intended that the Skills Centre should function as a broker, not necessarily providing all of the training itself, but drawing upon training resources across the region wherever necessary. Although expertise in such areas as human resources development and computer training was readily available in Kitimat, the increased demand for accredited training soon meant that the Skills Centre had to look wider afield.

The Skills Centre established a strategic partnership with the Southern Alberta Institute of Technology (SAIT) in Calgary, Alberta. Through this alliance with a major post-secondary institution that had strong partnerships with industry leaders, the number of technology-based courses available to Kitimat increased dramatically. Building on the success of the SAIT partnership, another alliance was forged with the local school district, in this case for the provision of accreditation for basic skills upgrading programmes, primarily in the areas of math, physics, chemistry and English.

It was also apparent to the local communities and industries that many of the training needs in emergency services and fire fighting were not being met, especially those pertaining to the volunteers. The Skills Centre therefore developed a major initiative called the Northern Emergency Services Training Academy (NESTA) which was designed to:

- provide training in emergency response, public safety and industrial safety to member partners in northwest British Columbia;
- reduce the training costs, both to municipal and individual responders;
- identify common training needs;
- co-ordinate the design, delivery and evaluation of high-quality, cost-effective training to meet the needs in the region;
- establish a leading-edge, technology-based training network to enhance education and training opportunities for all members;
- represent members collectively in negotiations and partnerships with educational and training institutions, government and other agencies; and
- develop synergies and network with other emergency services training providers in North America and globally.

One innovative approach developed by NESTA was the Distributed Access to Learning (DIAL) network, which utilises fully interactive, Internet-based training and can link up with up to 10 communities through a system of local “electronic classrooms.”

The demand for emergency training has grown rapidly since 1999 and now encompasses such topics as:

- fire fighter training
- fire instructor training
- training in rescue
- confined spaces training
- occupational first aid
- emergency response training
- emergency vehicle operation
- incident facilitator training
- industry safety indoctrination

On the latter point, great emphasis is placed on awareness-building and skills development to promote and develop a health and safety culture in the industries in and around Kitimat and to ensure that such values are fully upheld by management as well as the workers. Such safety training has become a major function and source of income for the Skills Centre.

The provision of human resources services is also a growth area for the Skills Centre. Opportunities for providing such services opened up when both industry and government stated a preference for out-sourcing recruitment services (in the case of industry) and human resources services (in the case of the federal government). Examples of the latter include career decision-making, skills enhancement, job search, employment maintenance and employment counselling.

Over the past three years, there have been 1,300 enrollees in the Centre’s industrial programmes (basic skills, engineering, technology, safety, trades, personal and professional development and computer training); 1,350 enrollees in its programmes for small business, the unions, First Nations, local government and the general community; and 1,100 clients, including the unemployed, for its human resources services.

COSTS AND FUNDING

The community-owned Kitimat Community Skills Centre operates as a non-profit society with a Board of Directors and provides its services on a full cost-recovery basis. Right at the outset, when the start-up funds were granted by government to help establish the facilities, it was made quite clear that the Centre must initiate a user-pay system and work towards self-sufficiency. The Skills Centre became self-sufficient on April 1, 2000, six years after its inception.

There are certainly easier ways of making money than running such an operation, but the Centre markets itself strongly, networks with chief executive officers and other key stakeholders, accommodates clients' needs and timelines for training provision, and identifies and delivers the programmes through providers and instructors who will give the clients what they need to succeed.

The Skills Centre's revenue is primarily derived from its contracts with the major industries in Kitimat and with government, in particular Human Resources Development Canada. Revenue is also derived from facility and technology rental, through NESTA and community, business and regional training, services and grants.

Recently, the Skills Centre introduced the concept of separate "profit centres," making its four programme consultants financially responsible for their particular areas of operation. The revenue targets are set annually for each profit centre by the administration and presented to the Board of Directors at the annual general meeting. It is then the responsibility of each profit centre to meet the annual fiscal goal, pay for its staffing and instructional materials, and contribute a percentage of its income towards the facility's administrative costs (advertising, insurance, facilities, maintenance, telecommunications, office supplies, licences, dues, subscriptions, etc.) and annual accumulative net income (for capital acquisitions and/or replacement). The administration is still responsible for applying for grants from government, industry and the community.

This profit centre concept has been found to work well in that it provides the staff with a sense of ownership and an incentive to work towards the Skills Centre's annual goals. While each centre is responsible for generating its own income, none works in isolation. All the centres are encouraged to work collectively towards the annual fiscal target.

All of the other Skills Centres subsequently established in British Columbia were given five years to become self-sufficient and operate on a full cost-recovery basis. At one time there were 20 of these centres. However, two failed, three or four were absorbed by local colleges, two were absorbed by the Open Learning Agency and a further four or five are expected to similarly lose their autonomy. The six or seven Skills Centres that have managed to survive have done so because their Managers had vision, entrepreneurial skills, went after the business or industrial market and did not make the mistake of assuming that the government would extend the five-year deadline or hoping for government contracts that rarely materialised.

ACCOMMODATION

At its start-up in 1994, the Skills Centre received funding for the design and construction of the main building. This custom-designed structure of about 4,000 square feet houses administration, the videoconferencing studio and two computer laboratories. It is owned by the society in partnership with the Northwest Community College.

Because of the increased demand for training and consequent increase in staff, a second building of 3,000 square feet has been leased to provide further classroom and office space.

MANAGEMENT

The Skills Centre is run as a community-owned non-profit society operating on a cost-recovery basis. It has a Board of Directors made up of 11 members representative of industry, business, education, government, unions and First Nations peoples.

The Centre is managed by a full-time Manager who is responsible for carrying through the policies of the Board, operating within the budget framework and managing all of the society's assets. The Manager's duties include hiring and supervising staff, developing proposals, managing programmes and administrating all revenues, expenses and purchasing. To function successfully in such a role, the Manager must have skills in needs assessment, financial management and entrepreneurship.

STAFFING

The Centre's Manager and other staff are all on contract. The Manager is assisted by a full-time administrative assistant and a part-time financial assistant responsible for financial transactions and record-keeping.

The Skills Centre currently employs four "programme consultants," each with his or her own distinct set of skills, areas of responsibility and accountability to a specific profit centre. These consultants may, as budgets allow, hire instructors, programme assistants, tutors and mentors to assist them in particular tasks. Communications between staff is strongly encouraged through bi-weekly staff meetings and a newsletter.

TRAINING MANAGERS, STAFF AND USERS

It is recognised that staff training is critical to the ongoing development of the Skills Centre and its capacity to remain competitive within the tight Kitimat training market. There is occasional opportunity for staff to attend short professional development workshops and seminars. These are usually offered in co-operation with end-users such as Kitimat industry and Human Resources Development Canada. However, lack of time, geographical isolation and inadequate training dollars mean that the Centre's Manager and staff are not able to participate in professional development programmes as much as they feel they should. It is anticipated that there will be improved opportunities for online staff training as the regional DIAL training network is further developed and applied.

PUBLICITY

Publicity is considered to be extremely important in the competitive training market. Marketing and public relations are the responsibility of the Manager and the programme consultants. The Centre also retains the services of a part-time marketing specialist, and it has access to public relations services through SAIT, government, industry and the District of Kitimat.

Periodic news stories in the local and regional newspapers have developed a greater public awareness of the Skills Centre, and the development of a Web site (www.sno.net/kcsc) has also greatly aided the promotion of the Centre's training products and services. The Centre also publicises its offerings through brochures, radio and TV advertising and by participating in trade fairs throughout the Northwest. Joining and regularly attending such community groups as Rotary International and the Chamber of Commerce are also found to pay dividends, as such contacts can often lead to requests for proposals and, ultimately, contracts.

ACCESS

Many of the Skills Centre's clients are industry shift workers, so it is necessary to provide access to at least some of the facilities on a 24-hour basis. The hours of opening in the main building are from 8:00 a.m. to 10:00 p.m. Staff are always present during these times to provide support and ensure security.

The leased facility provides 24-hour access through a computer-based "smart card" system that allows a certain number of trainees independent and full-time access to the study hall, Internet and technology library. User access is monitored by computer through the individualised card system and the facilities are made available on an honour basis.

TECHNOLOGY

From its inception, the Skills Centre was conceived as a leading provider of educational technology in the community. And, indeed, because of Kitimat's isolated location, technology has become the cornerstone of the Centre's existence.

The initial technologies included a satellite-based talk-back TV system using both C and Ku band and this has proved a very popular vehicle for training. The transmission costs, which are primarily charged out from the educational institutions, are not exorbitant; the quality of the presenters has been high; the one-way video, two-way audio allows for interactivity; and the picture quality on the 60-inch TV screen is superb. Much of the popularity of this mode of training, especially with the engineers and technologists, is the result of the Centre's affiliation with the U.S.-based National Technological University. It is an independent university with its own accreditation authorisations, and it harnesses expertise in 50 affiliate universities to deliver competitive and profitable certificate, baccalaureate-degree and graduate-level engineering programmes by satellite TV and online to corporate clients at 350 North American sites and 1,000 international locations.

The Skills Centre also has a videoconferencing suite which operates on switch 56 (112) Kbps. Although the telephone transmission costs are relatively high, this live, fully interactive service is inexpensive compared with the costs of air travel to and from Kitimat. Videoconferencing is currently gaining in popularity with several industries, and government departments are now using this service for their recruitment purposes. The Centre is constantly seeking new markets and clients for its videoconferencing services, and in the future it may apply this service to meet the needs of the health services, emergency and safety training, and police training.

The Skills Centre owns its own server and the computer laboratories have 586 Pentium units with full Internet access via cable at 512 Kbps. Ever since its opening, the Centre has used the Internet for its administration services and researching and developing training programmes. However, new opportunities for online training became evident through the partnership with SAIT and its ACCESS programme using LearnLinc software. Building on the success of the ACCESS pilot programmes, the Skills Centre acquired its own LearnLinc software to establish a northwest regional network, linking the communities of Prince Rupert, Terrace, Kitimat and Smithers. All of these communities have established electronic classrooms designed for both delivering and receiving online training. These classrooms are equipped with large monitors, Intel Pentium 200 MHz processors, Internet connection (min 33.6 Kbps) and LearnLinc software for interactive course delivery.

Demand for the Centre's facilities continues to grow and the facilities include an Industry Literacy and Numeracy Laboratory (using PLATO Learning), an Engineering Technology Internet Laboratory, a Trades and Technology Classroom and a French and English-as-Second-Language laboratory.

RESEARCH AND EVALUATION

Evaluation of the Skills Centre's processes and outcomes is definitely lacking. To be competitive, the Centre must work to a very tight budget and few, if any, resources are allocated to researching and evaluating programme delivery and services. However, the Centre finds that client response is an effective evaluation tool and it therefore constantly solicits feedback from its clients. Any negative feedback is dealt with instantly through self-evaluative staff workshops and follow-up with the client.

CONCLUSIONS

Today the Kitimat Community Skills Centre's network spans from Prince Rupert to Prince George and operates in partnership with the Northwest Community College, the Southern Alberta Institute of Technology, the University of British Columbia, the B.C. Ministry of Education and the Northern Emergency Services Training Academy. It also continues to receive considerable assistance from the Open Learning Agency of British Columbia. As well, it supports the Community Skills Centres Consortium and has developed active partnerships with other Community Skills Centres throughout the province. Community feedback is most supportive of the Centre. Leon Brown, Kitimat Fire Chief, writes, "Both NESTA and the Kitimat Community Skills Centre are valuable resources to the Kitimat Fire Department. As a small Fire Department with a limited training budget, the cost of sending staff out for training is prohibitive and the use of correspondence is only successful for some individuals. Both NESTA and the Skills Centre focus on the needs of the customer and matching their needs to existing custom-designed courses."

Doug Petersen, Employer Relations Manager, Eurocan Pulp and Paper, says, "I am impressed with the Centre's flexibility; they always meet Eurocan's needs. The Kitimat Community Skills Centre's training programmes are tailored to individual industry's needs."

Walter McLellan, Director of Personnel in the District of Kitimat commends the Centre: "The District of Kitimat is large enough to require ongoing employee training but too small to do it on our own. The Skills Centre offers the opportunity to pool our resources

with other organisations to access high-quality programming and leading edge technology. While the larger companies may use the Skills Centre's services more, its greater value is to smaller organisations."

Facilitator Tanya Stevenson says, "The Skills Centre is a great place to take advantage of technology. It allows us to communicate with people all over the world." Former student Liliano Santos observes, "Being located in a small community, finding educational and training programmes can be very difficult. The Skills Centre opens the door to a whole new world of technology and training. My experience at the Skills Centre was a promising one. I would like to express my gratitude to such a fine institute and to the knowledgeable staff."

In September 2000, the Kitimat Community Skills Centre completed its sixth year of operation. The Centre has managed to achieve self-sufficiency and has actually generated a small profit for capital re-investment, but it is obvious that without initial government grants, this task would hardly have been possible. Meeting these training needs at the lowest possible cost and breaking even or showing a profit is not a simple or easy task. Providing customised training any place and any time on a full cost-recovery basis, especially for the volatile industrial market, calls for vision and constant innovation in programme and technological delivery. Training is not necessarily a high priority for many businesses and industries. To survive in this market, operations such as the Skills Centre must understand the clients' needs and make speedy, appropriate and innovative responses to requests. Quality service to the employees and the trainees is absolutely pivotal for the Centre's survival.

The word "community" in the Centre's full title is important. It signifies that the Centre is there for the benefit of all the people who live and work in its vicinity. But liaisons and partnerships with organisations outside the community are also an essential ingredient, because few rural community training centres can have access to the educational resources taken for granted at institutions in the urban areas, especially if those centres are not part of the public education system.

Good human resource management is also crucial. Incentives must be provided for the Centre's staff, and management must be fully aware of its staff's individual needs, challenges and frustrations, and be ready to provide training, support and encouragement.

Commercial sponsorship, especially technology sponsorship, can greatly assist centres in acquiring the latest tools that are essential for their survival. Clients are acutely aware of outdated technology and are often capable of acquiring state-of-the art technology themselves, thus bypassing the services of the centres. The systems at the Skills Centre must therefore be value-added in some way by the staff.

If centres are to operate as non-profit organisations, it is essential that their management committees represent the end-users or clients, as is the case with the Skills Centre Society. All of the Centre's Board members are volunteers and will only support the Centre if they are convinced that it is providing their businesses or industries with high-quality training at a competitive cost.

So, finally, what is the future of the Kitimat Community Skills Centre? There is no doubt that it will survive, even though it is totally dependent on local industries and their volatile aluminum, pulp and paper, and chemical markets. To counter any roller-coaster effect, the Centre needs to demonstrate ongoing flexibility, not only in the

provision of its programming, but also in its management and staffing. This is one of the reasons its Manager and staff are all on contract.

The trend in industry is towards out-sourcing training, which is a positive sign for the Centre, and new opportunities for training will always arise, but only for those facilities that can demonstrate flexibility, quality and entrepreneurship.

The experience of the Kitimat Community Skills Centre demonstrates that telecentres can survive — and even thrive — in a traditional educational and training market where, at the present time, vision is often absent and entrepreneurship and enterprise are rarely encouraged.



CHAPTER 9

THE AMIC@S IN THE MUNICIPALITY OF ASUNCIÓN, PARAGUAY

Sergio Aranda

*AMIC@ Co-ordinator and LearnLink Resident Advisor,
Asunción, Paraguay*

Mary Fontaine

LearnLink, Academy for Educational Development, Washington, DC

LOCATION AND CONTEXT

Located in the heart of South America, the Republic of Paraguay has a population of 5 million people and covers 406,752 square kilometres. Its economy is based primarily on agriculture. The country is bordered by Argentina to the west and south, Brazil to the east, and Bolivia to the north. The Paraguay River divides the country into two sharply contrasting regions: the Paraguay Oriental, where 95% of the population lives; and, in the west, the Gran Chaco, or Paraguay Occidental, a vast arid area inhabited by the other 5%, most of whom are indigenous peoples.

Asunción, the country's capital and largest city, is home to almost 1 million inhabitants, not including the quarter million who commute daily from the greater metropolitan area to work and study in the city. In general, the capitals of Latin America are representative of the social, economic and political circumstances of their hinterlands, and Asunción is no exception. Underemployment, crowded and poorly resourced public schools, marginal zones without such basic services as trash collection or sewers, and oversized public monopolies providing such primary services as electricity, running water and telephony are characteristic of the nation as a whole.

Unlike the other capitals of the Mercosur (the South American common market), as far as the common citizen in Asunción is concerned, the Internet is almost non-existent. According to a survey conducted by the International Telecommunications Union in 2000, across the whole country there are only 20,000 people (0.36% of the population) connected to the Internet. Of the approximately 1.5 million inhabitants of the capital city and surrounding urban area, only about 12,000 (0.8%) are registered users of the six local Internet service providers. The technology and the access it yields are almost exclusively the preserve of the elite.

In 1999, Paraguay was between 78 and 109 on the World Ranking Scale of the Human Development Index, which assesses countries in terms of life expectancy, infant mortality, GNP per capita, daily caloric intake, education and so on. Unhappily, it was also recently ranked second (behind Nigeria) in the list of the world's most corrupt countries.

After 34 years under a dictatorial regime, followed by 11 years of an incipient democracy, Paraguay is still working to implement a real democratic system, reform its economy and enhance human rights.

HISTORY

The AMIC@ initiative was launched in late 1997 as part of a collaborative programme between the Municipality of Asunción and the United States Agency for International Development (USAID), implemented through the LearnLink project of the Academy for Educational Development in Washington, DC.

LearnLink was established in 1996 and is funded by the Human Capacity Development Centre of the USAID Global Bureau, African Bureau and other USAID bureaux, offices and missions. Known officially as the “Global Communications and Learning Systems initiative,” LearnLink is a five-year Indefinite Quantities Contract that has helped design and implement more than 15 projects in as many countries. The focus is on developing information, education, and information and communications technology (ICT) applications in virtually every sector. (For further information on LearnLink, see www.aed.org/learnlink.)

AMIC@ stands for *Aulas Municipales de Información, Comunicación y Aprendizaje*, which loosely translated into English means “municipal classrooms for information, communication and learning.” As an acronym, AMIC@ evokes the Spanish word *amiga* or “friend.” Located in the poor neighbourhoods of Asunción, the AMIC@s were conceived as community learning centres that could be used for:

- decentralising municipality of Asunción systems and services;
- strengthening municipal and democratic processes, improving communication between citizens and government, and strengthening popular participation in civic activities;
- providing disadvantaged individuals, groups and communities with access to computers, telecommunications, free e-mail accounts and the Internet;
- automating and simplifying civic activities such as registering to vote and applying for licences;
- accessing information and databases for business development; and
- generally ensuring transparency and access.

In short, through these centres, it was hoped that official functions could be devolved to the community level, that the public would be better informed and more engaged in democratic processes, and that poorer communities could share in the benefits of ICTs and have opportunities for lifelong learning.

On January 28, 1998, the first of the 12 projected AMIC@s, based in the central bus station of Asunción, was officially opened as a pilot project to demonstrate how the information and communication needs of a broad cross-section of the Paraguayan people could be met. Seven months later, the second AMIC@ opened in the Manzana de

la Rivera Cultural Centre. During the intervening period, the bus station AMIC@ experience was analysed. This resulted in the development of regulations for using the AMIC@s and the creation of a mechanism known as Management Commissions to ensure community participation in managing, maintaining and supervising the centres.

In 1999, a further eight AMIC@s opened their doors and, during the first half of 2000, the last two centres became operational. The result: a grand total of 12 AMIC@s in Asunción, exactly as originally projected. During its first three years of operation, the AMIC@ initiative has achieved significant results with limited resources and in the face of difficult circumstances. Not only have the telecentres functioned effectively from a management perspective, but they are starting to prove their worth by serving increasing numbers of disadvantaged citizens. As Dr. Martin Burt, Mayor of Asunción, said at an AMIC@ launching ceremony in January 1998: "Thank you for not bringing me more books. Thank you for giving me all the libraries in the world!"

AFFILIATIONS AND STRATEGIC ALLIANCES

Critical to the success of such an undertaking are affiliations and alliances with groups such as Internet service providers, computer warehouses, software developers, public and private schools, post-secondary institutions, libraries, museums, non-governmental organisations (NGOs), community-based and non-profit organisations, chambers of commerce, and local business and media organisations. The individual in the position of AMIC@ Co-ordinator and LearnLink Resident Advisor approached partnership development with the philosophy of "exciting everyone." (The role of the LearnLink Resident Advisor is also described in Chapter 13 of this book.) His constant efforts to establish alliances with strategic partners resulted in the following:

- *Internet service providers* — Rieder Internet, Planet S.A. and NetVision S.A. provided wireless and dial-up access to the Internet, technical support and training in computer use for the AMIC@s' staff.
- *Higher education* — In June 1999, during the official opening of the AMIC@ at Bañado Sur, an agreement was signed between Universidad Católica (Catholic University), Sede Regional de Asunción, and the Municipality of Asunción to support the AMIC@ programme. As a result of this agreement, instructors and senior students from the university have served as volunteers, training AMIC@ Facilitators and users in computer use and applications.
- *Radio and television stations* — Radio Ñandutí and FM Trinidad have advertised and covered the main events held at the AMIC@s and have broadcast news and details about their programmes. More recently, Sistema Nacional de Televisión has begun supporting activities in the AMIC@-Sajonia, which is close to their main broadcasting station.
- *US Peace Corps* — This agency provides volunteers to train street children in computer operations and applications and help the Facilitators with their managerial and operational tasks in the centres. In return for this work, the Peace Corps volunteers are granted free access to the equipment (which they use primarily for e-mail), an example of the barter relationships that can be developed through telecentres.

Another example of a flourishing alliance is the relationship that has developed between the AMIC@ at the central bus station and a nearby NGO that provides shelter for the homeless boys and girls who shine shoes and sell sundries at the station. The computers attracted the attention of these disadvantaged children, and they now visit the AMIC@

regularly, surfing the Web, learning how to design Web sites and, on one occasion, participating in a videoconference with the Mayor of Asunción.

FUNCTIONS

The AMIC@s have been set up to provide training and technical assistance for a wide variety of people so that they are able to:

- use computers and the Internet for research, information gathering and publishing through the Web and print; and
- communicate via the Internet, videoconferencing and other means with municipal authorities in order to find out more about taxes, public services and other aspects of their municipality, obtain documents, and comment on public issues.

In pursuit of these goals, the centres are:

- offering formal training programmes, open to anyone in the community and ranging from keyboarding skills for absolute beginners to more advanced training in word processing, electronic spreadsheets, presentational software, desktop publishing, image processing, Web page design and multimedia courseware development;
- providing job skills training, career development programmes and opportunities for employment searches;
- training Facilitators and municipal employees in computer applications and telecentre management;
- providing Internet access for Web browsing, e-mail, chat sessions and videoconferencing;
- providing access to civic and community services such as the National Voter Registration Database during electoral periods when citizens can enter their ID details and find out the location of their polling stations;
- co-sponsoring computer-based contests such as one in Web design involving NGOs;
- enabling students to use AMIC@ facilities for special projects such as entering the Junior Achievement competition, a highly regarded programme conducted throughout the Americas to engage young people in leadership-related activities;
- mounting guided tours of AMIC@ facilities to familiarise would-be users with the services, technologies and potential of ICTs; and
- providing open lab times when people involved in formal courses of study can practise what they've learned, using the AMIC@ facilities.

COSTS AND FUNDING

The start-up process was supported partly by funds from USAID and partly out of the Municipality of Asunción's budget. From the project's very outset, the Municipality had vowed to help support the initiative. However, by the time the project was actually launched in 1998, the country had been devastated by El Niño, and the Municipality found itself having to spend the funds earmarked for the AMIC@ project on emergency services and provisions. So, at first the AMIC@s had to survive without the full financial support of its primary local partner.

Affiliation with the Municipality and partnership with some private companies have been critical to sustaining AMIC@ operations. Affiliation with the former provides an

enormous advantage because the Municipality pays for electricity, telephones, running water and rent — all of which constitute 40% of the centres' operating costs. A further 30% of the costs is met through the partnerships with private companies, who generously provide for some of the equipment upgrades and replacements, telecommunication services and Internet access charges. The remaining 30% of the costs (office supplies and other general expenses) are met from fees charged to the users.

The user charges are set at rates low enough to encourage everyone in the community to participate. Moreover, in some cases, in lieu of paying for their computer training or online time, users have been given the option of donating relevant books to the centres. This creative barter arrangement worked particularly well with the launch of the AMIC@ at La Manzana de la Rivera, a popular public place housing a theatre, art gallery, museum and public library. The facility benefited greatly from receiving books in this way.

The standard AMIC@ fees are as follows (at the time of writing, 3507.00 Paraguayan guaranis (G) = US\$1.00):

Computer use (including Internet use)	Gs. 1,000 per hour
One colour printed sheet	Gs. 500 per sheet
Multicoloured printed sheet	Gs. 1,000 per sheet
Photo-quality multicoloured printed sheet	Gs. 3,000 per sheet
Formal courses	Gs. 20,000 – 30,000/month

Special membership schemes are also available for public or private organisations wishing to use the AMIC@ resources to train their employees and for educational institutions needing to draw on the facilities for teaching or research purposes. The AMIC@s' local Management Commissions develop and implement a wide variety of creative plans to generate further income or attract additional sponsorship.

ACCOMMODATION

The AMIC@s are located in public spaces where the telecommunications equipment, computer access and Municipality's services can be available to all. They are most typically found in municipal centres and public schools, where they are fully integrated and use the same electricity source (albeit through separate circuits), and where security systems, restrooms and other basic services are already available. In one case, so enthusiastic were the potential beneficiaries of an AMIC@ that the bricklayers, masons and carpenters in one poor community volunteered their services and literally built the centre from the ground up. In general, the AMIC@s have their own separate entrances and, because of the subtropical weather, are protected from humidity and excessive heat by air-conditioning.

The locations of the AMIC@s in Asunción are given in Table 9.1.



The Mayor of Asunción with children at AMIC@.

Table 9.1: The locations of the AMIC@s in Asunción.

LOCATION OF AMIC@	NUMBER OF AMIC@S
Municipal centres <i>(Barrio Obrero, Trinidad, Sajonia and Marangatu)</i>	4
Other municipal facilities <i>(La Manzana de la Rivera Cultural Centre, Central Bus Station, and Municipal Market)</i>	3
Municipal elementary school (<i>Marangatu Rape</i>)	1
Public Park (<i>Isla de Capri</i>)	1
Community schools <i>(Tablada Nueva, Bañado Sur and Tacumbú)</i>	3

MANAGEMENT

The Municipality of Asunción is officially the owner of the AMIC@ project and is responsible for determining the programme's regulations and preserving its spirit. A special Co-ordination Unit was created inside the Municipality's structure to help plan, supervise and render technical assistance as necessary to the centres. However, the LearnLink Resident Advisor quickly became aware that the framework of this project needed to be looked at in terms of social demand and had to be integrated into the daily lives of the residents of the city. So, to assist the Municipality, each AMIC@ also has a Management Commission made up of community activists — for example, youth and church groups, local NGOs, community commissions, book clubs, voluntary fire fighters, local radio stations and others committed to serving the communities — and a representative of the Municipality. These Management Commissions assume local responsibility for implementing the programme's strategic objectives by:

- identifying community needs and planning and organising activities in accordance with these;
- setting realistic expectations of the outcomes (thus, for example, if a community had no prior knowledge or experience of computers or their capacity, the local Management Commission would first promote and launch activities related to such basics and later, when the time was right, introduce the community to the more advanced Internet/Web services, databases and so on);
- monitoring conditions to ensure that technical provision and services are appropriate and effective;
- reviewing costs and charges, seeking collaborative arrangements with other providers, setting pricing regimes that are well within the community's means and administering finances;
- promoting and encouraging alliances with private companies and non-profit organisations; and
- helping to co-ordinate the AMIC@ Facilitators' activities and relationships with those of other Facilitators.

These Management Commissions are empowered to act relatively independently. However, consistency and constancy in the project are assured by the Commissions

meeting regularly to exchange experiences and the Municipality's representative liaising with the Commissions.

STAFFING

The AMIC@s are hosted by Facilitators, thus named because they facilitate the process of integration between people and the technologies and services on offer. The Facilitators are mainly municipal employees or young volunteers who are required to assume responsibilities for the overall functioning and security of the centres. There are three Facilitators per centre. Municipal employees are directly paid by the Municipality and work in AMIC@s located in municipal dependencies. The volunteers are either recruited from the local communities and user groups, come through the Peace Corps, or are students from the Catholic University. Payment for the volunteers and student helpers depends on the policy of the local Management Commission, but is usually on the basis of time worked. Peace Corps volunteers and Catholic University students receive no payment for their assistance, but may use the centres' facilities in return for their services.

All of the Facilitators and volunteers live near the local community, so they know and understand the community needs and culture, and therefore are able to relate well to the users. The high quality of the staff and volunteers has been an important factor in the success of the AMIC@s. Friendly, helpful and reliable staff encourage people to pay a first visit to the centres and then, more importantly, to make return visits after that.

The main problem is that the young volunteers and students are transient, so it is necessary to have in place an effective transfer strategy to ensure that the new volunteers acquire the basic know-how.

The Resident Advisor is kept extremely busy working with the 12 AMIC@s. At the time of writing, he was also working hard on an electronic information voting system for the Vice-Presidential election in Paraguay — involving the use of touch-screen kiosks (the one in the Asunción main bus station has attracted more than 400 queries per day) — and finalising the Municipality's official Web site.

TRAINING THE AMIC@ MANAGERS, STAFF, AND END-USERS

Training has been a central feature of the various stages of the AMIC@ experience, both for developing an understanding of how to operate the telecentres and for familiarizing users in the technology. There are four strands to the training provision:

- *Technical training* — The Municipal Technical Unit focuses on the technical issues, providing advice to the Management Commissions, troubleshooting, planning software and hardware maintenance, and training the Facilitators in first-line technical procedures.
- *Management training* — The Management Commission members are strongly urged to participate in special introductory courses that cover management concepts, accounting procedures, and advice on how to plan and administrate AMIC@ resources and activities aimed at community capacity-building.
- *Training the trainers* — The Facilitators and volunteers are trained in basic pedagogy and how to provide first-line technical assistance and informal training for the users of the AMIC@s.

- *Training the AMIC@ users* — The users receive formal training by teachers and informal training by Facilitators and volunteers in the different computer applications and Internet applications. Each AMIC@ also offers additional multimedia, self-instructional programmes that users can work through in their own time and according to their particular needs.

From the very start, it was recognized that it would be difficult for the one Resident Advisor to provide adequate training across all of these technical, managerial and operational issues and in all 12 AMIC@s. To address this problem, two strategies were adopted.

First, four of the centres were established within educational institutions: Maragantu Rape in a municipal elementary school, and Tablada Nueva, Tacumbu and Bañado Sur in community schools. The teachers in these schools were able to provide the formal training programmes and technical assistance to the Facilitators and volunteers.

Second, alliances were established with higher educational institutions, in particular the Catholic University of Asunción, to provide:

- formal training in pedagogical and technological methods and content for the Facilitators and volunteers; and
- training for local teachers and final-year students in planning and providing computer courses for AMIC@ users.

While this system is rather complex to manage, it meets all of the AMIC@s' expectations, and there is good interaction between all the institutions and the centres.

PUBLICITY

The AMIC@s are becoming so popular that the launch of each new centre is a major community event, complete with music, dancing and speeches from local dignitaries, celebrities, government officials and representatives of the public, private and voluntary organisations and agencies associated with the centres. The entire neighbourhood celebrates at these occasions, with food and drink and dancing, and the local priest blesses the new centre. Such grand occasions are covered by the major newspapers and local television stations. The Sistema Nacional de Televisión, as well as the local radio stations such as Radio Ñandutí and FM Trinidad, have been particularly generous in covering these events and promoting some of the centres' activities and services. Through such means, people quickly get to know about the centres and become interested in all they have to offer. Following up on this, brochures describing the centres' services, activities and upcoming events are distributed throughout the community and displayed in shops, companies and affiliated organisations. The Municipality's Web site also promotes the AMIC@s, encouraging people to visit their local centres and take full advantage of their facilities and services.

ACCESS

The AMIC@s are open daily, Monday to Friday, from 8:00 a.m. to 6:00 p.m. However, depending on the community and the AMIC@'s location, it is possible to find a centre staying open until 9:00 p.m. or even later and opening on Saturdays or Sundays as well.

Before using any of the AMIC@'s resources, users must identify themselves with a valid ID or a parent's or tutor's ID and must complete the user profile form. Users can

reserve up to three “turns” (times to use the services) per week. The duration of these turns may vary according to a particular AMIC@’s regulations and local circumstances, but a typical turn for Web browsing or using computers is one hour and 30 minutes for chat sessions and videoconferencing, and 15 minutes for checking or sending out e-mails.

TECHNOLOGY

Each AMIC@ has a base technology configuration of:

- four to five personal computers, each with multimedia capabilities and capacity to send faxes and browse the Internet;
- one black-and-white and colour ink-jet printer, with copier and scanner capabilities;
- a LAN interconnecting the computers and printer using a 10/100 Mbps and HUB and UTP (cat. 5) cabling;
- various accessories such as a Web cam for videoconferencing, microphones, speakers, digital cameras; and
- software, including operating systems, word processing, spreadsheets, antiviral kits, back-up utilities, Spanish dictionaries and encyclopedias.

The Municipality of Asunción has signed agreements with the two main Internet service providers in Paraguay. They provide two types of Internet access for the AMIC@ programme: wireless and/or a dial-up connection. Currently, seven AMIC@s have wireless connections and five use a dial-up. Where there is wireless connection, the bandwidth is also used to provide internal communication (via the Municipality’s intranet) and to allow the interchange of administrative data and Municipality information/services. Thus, there are two virtual networks available: a public network, interconnecting the AMIC@s, and a private network, connecting the employees, supporting the decentralisation process and providing municipal services. Such an arrangement maximises the potential of the ICTs and provides the communities with the widest possible range of benefits. In all but three AMIC@s, the Internet can be accessed 24 hours a day.

Right from the start, the Municipality’s Co-ordination Unit has given invaluable technical assistance to the Management Commissions in regard to technological issues. It also trains the Facilitators, involves them in a capacity-building programme with all the other AMIC@ Facilitators, and monitors and evaluates their performance.



An AMIC@ kiosk.

RESEARCH AND EVALUATION

As of July 2000, the AMIC@ project had been extended by the major donor, USAID, in collaboration with the Municipality. After reviewing the experiences to date, some changes were being made to the operations to make the centres even more user-friendly and to offer and automate more of the Municipality’s services. New arrangements were also being explored for more equal sharing of responsibility between the public, private and voluntary sectors.

The bulk of the work to date has concentrated on constructing facilities, often from scratch. Procuring and installing equipment, experimenting with and promoting products

and services, informing and engaging the community, establishing strategic alliances, and training the Facilitators have been enormously time-consuming, leaving little time for any formal monitoring of processes and outcomes. While definitive evaluation data on project design and implementation conducted through LearnLink are not yet available for public distribution, usage data have been tracked. These indicate that in 1999, the last full year of operation, more than 3,000 citizens from disadvantaged communities used the AMIC@'s services. The data also indicate that the people using the AMIC@'s come from all walks of life — from students and street children to teachers, merchants and prison guards.

The strongest indications of the AMIC@'s' success are that all 12 centres are operating effectively despite difficult circumstances, that people are crowding in to use a wide range of services, and that the project has been extended by its two key sponsors. The ongoing involvement of the Mayor and other civic leaders and the citizen participation in the local governance of the AMIC@'s provide further evidence of the centres' impact. One AMIC@ evaluator concludes, "The AMIC@'s are slowly changing people's attitudes, not only due to the benefits of technology at their disposal, but also due to a growing confidence of the active forces of the community in their capacity to work and learn with the Municipality."

CONCLUSIONS

The AMIC@ initiative has had to cope with poor infrastructure, poverty and a lack of education in the target communities, a history of non-involvement of local citizens in civic affairs, and a complete lack of familiarity with ICTs. Nevertheless, it is meeting with success on numerous fronts. Several factors have emerged as being critical to that success:

- the well-planned, enthusiastically and effectively implemented outreach, which ensured the involvement of a wide range of stakeholders;
- the willingness of the Paraguayans to seize the opportunities available through ICTs, which, historically, they have not done for educational, political, social or economic gain;
- the role of the Facilitators and the volunteers in changing the people's mindsets and introducing them to the culture of democratic participation and modern communications;
- the provision of funding from the Municipality budget, which undoubtedly sustained the project;
- the recognition that there are dangers in long-term reliance on the Municipality for funding and that the AMIC@'s must become more self-sustaining; and
- the support of the local Management Commissions and its role in developing and promoting new activities and encouraging new players to participate in the programme.

The main lessons to be learned from the AMIC@ experience about this model of telecentres can be summed up as follows:

- Do everything possible to promote genuine and widespread community participation. If the principal beneficiaries are not involved from the beginning and do not have a sense of ownership, it is unlikely that the initiative will be sustainable.

- Involve the active forces of the community in the centres' management through a structure similar to that of the local Management Commissions.
- Forge strategic alliances with the private sector. Such relationships can assist with launches and long-term sustainability and should be widely publicised to help raise the profiles of the companies involved and so encourage their continued participation. In return, they will help promote the value and usefulness of the centres and encourage other enterprises to partner with the scheme.
- Maintain a commitment to educational organisations. The students from the public schools and colleges were the first and most enthusiastic users of the AMIC@ resources, which complemented (and in some cases were preferred to) the resources in their own institutions. While this initially led to some problems with the teachers, who were less likely than their students to use these resources, careful nurturing of relationships with teachers, including special outreach and training, helped overcome the problem.
- Encourage participation by local NGOs and voluntary groups. The AMIC@ experience shows that such groups find it invaluable to have workspace in the telecentres and may be open to bartering for voluntary labour and services. The result is affordable and enriching experiences for both parties.
- Cultivate and involve the national and local media. Newspapers, radio and television go into everyone's homes and are an effective way to show what is being offered, where, and what the benefits are.
- Clearly determine the focus of each centre's programme and then let everyone know about it. To simply provide training in computing and ICTs without any ultimate goal in mind will only create false expectations among the users and the other stakeholders. From the very beginning, it is important for the user to be able to ask and answer the question, "Now I know how to use a computer, the Internet and the Web. What next?"





CHAPTER 10

THE NAKASEKE MULTIPURPOSE COMMUNITY TELECENTRE IN UGANDA

*Meddie Mayanja
Project Officer, Nakaseke Telecentre,
Uganda National Commission for UNESCO*

INTRODUCTION

It might be asked, “The vast majority of African people have never made a telephone call, so how can the Internet benefit them?” And, as Chasia (1998) notes, it is also often said that most Africans have so little income that the minimal return on the heavy investment necessary to provide even basic telecommunication services in rural and outlying areas cannot be justified. The Nakaseke Multipurpose Community Telecentre (MCT) project was designed to challenge these ideas and provide a test bed for future investment in information and communications technologies (ICTs) for rural development.

LOCATION AND CONTEXT

Uganda has a population of 21 million, of which 88% live in rural areas and largely depend on subsistence farming. Nakaseke MCT is located in the 254 square kilometres rural Nakaseke Sub-County in the Luweero District of Uganda, about 50 kilometres north of Kampala. It actually serves two sub-counties (administration units), Nakaseke and Kasangombe, and a network of villages with a total population of 31,000 people (1991 census), over 1,000 of whom live in the proximity of the Nakaseke Trading Centre.

The penetration of the communication services in Nakaseke and Kasangombe, as in many other parts of the country, is very poor. In 2000, the Uganda Communication Commission estimated the national teledensity to be 0.28%, with television coverage being a low 10:1,000 and radio coverage 106:1,000.

HISTORY

The Nakaseke MCT is part of the broader MCT Pilot Programme launched at the co-ordination meeting for the African Information Society Initiative (AISI) in Addis Ababa

in 1996. The programme was a major component of the Harnessing Information Technology for Development (HITD), an element of the U.N. System-wide Special Initiative for Africa. Three international sponsors — the International Development Research Centre (IDRC), International Telecommunication Union (ITU) and UNESCO — with support from the Danish aid agency, DANIDA, subsequently undertook a study into the feasibility of MCT pilot projects and recommended Uganda as one of the participating countries. Uganda was then invited to develop a plan to set up a single pilot MCT, albeit taking account of the generic approach (Rose 1999).

The establishment of the MCT was also facilitated by the enactment of the 1997 Ugandan Communication Act, which among other issues provided for the liberalisation of the communications sector. Nakaseke was seen as an excellent site for a pilot programme because its telecommunications and other infrastructure had been severely affected by the civil unrest between 1980 and 1986, and the sub-county was in the process of reconstruction. It was also seen as an ideal community because it was sufficiently close to Kampala to allow for monitoring and technical support, and because the rural community showed great commitment and enthusiasm for owning and participating in an MCT. Uganda was therefore able to put forward a sound and comprehensive proposal and received international funding to initiate this three-year pilot project in early 1998. Nakaseke became one of five UNESCO/IDRC/ITU-supported telecentre projects in Africa, the others being in Benin, Mali, Mozambique and Tanzania.

The Nakaseke MCT became operational in March 1999. The general concept was to provide, in the face of scarce resources, a centre where the rural community could access information and communication resources — print, video, CD-ROM, telephone, fax, e-mail and the Internet/Web — and where it could be shown whether providing ICTs to rural communities could catalyse their development and improve the quality of their lives. The effectiveness of the MCT strategy was to be measured against the level at which the community had received increased access to ICTs, local content for capacity-building in ICTs and socio-economic development, and had participated in documenting and using indigenous knowledge (Mayanja 1999).

AFFILIATIONS AND STRATEGIC ALLIANCES

In pursuit of the above objectives, the MCT forged partnerships with institutions and individuals who had the required resources or who could provide access to potential users. At the international level, these included UNESCO, the Food and Agriculture Organization (FAO) and The British Council. At the national level, they included the Uganda National Commission for UNESCO, the Uganda Public Libraries Board, Uganda Telecom Limited, NARO (National Agricultural Research Organisation), Kawanda Agricultural Research Institute, local non-governmental organisations (NGOs) and the community and opinion leaders within the Nakaseke and Kasangombe communities.

These partnerships provided invaluable technical resources and support free of charge, which has in turn facilitated programming and content creation. For instance, the partnership with The British Council brought in £15,000 worth of library and information materials, while the FAO and NARO have collaborated in the development of a much-needed electronic agricultural information system for sharing information among researchers, agricultural extension workers and farmers in Nakaseke.

FUNCTIONS

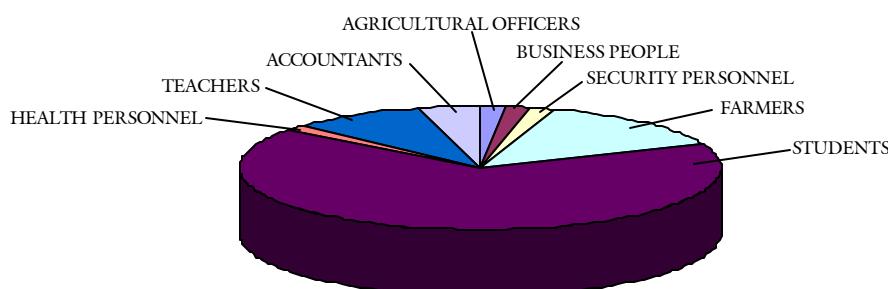
The MCT serves the two sub-counties (administration units) of Nakaseke and Kasangombe. Within these are 23 primary schools, six secondary schools, a university and a regional Primary Teachers Training College, none of which has ICT resources or resource centres and all of which are therefore entirely dependent on the services of the MCT. All of these institutions are centrally located around the Nakaseke Trading Centre. There is also the Nakaseke Hospital, a five-minute walk from the MCT, a district hospital for the Luweero and Nakasongola districts. This hospital is seriously under-resourced in terms of medical facilities and, prior to the launching of the MCT, lacked even the most basic ICT system to communicate with the districts it serves and the outside world. The MCT therefore needed to provide the medical and administrative staff with a communication facility. The MCT also serves a network of NGOs grouped under DENIVA (Development Network of Indigenous Voluntary Associations), the local administrative council, small businesses, farmers, women's groups, unemployed youths and the community generally.

The MCT maintains a database of all users' names, addresses, ages, gender and occupations. User forms are provided at all service points for the purposes of registration and to capture as much information as possible about each user. These data are later used in evaluations of services and to inform decision-making. All users thus registering are issued with registration numbers and cards by which they can identify themselves on all future visits. No further identification or registration is required as the numbers are automatically stored in the database. There are currently more than 500 registered MCT users (Table 10.1 and Figure 10.1).

Table 10.1: User groups of the Nakaseke Multipurpose Community Telecentre.

GENDER:	
Female	25.8%
Male	74.2%
AGE:	
<15 years	4.88%
15–20 years	54.47%
20–30 years	22.76%
>30 years	17.89%

Figure 10.1: Main occupations of user groups of the Nakaseke Multipurpose Community Telecentre.



The MCT offers a range of services:

- telephone and fax;
- resource centre and book box for schools;
- Internet and e-mail;
- ICT training and applications;
- topical video shows;
- outreach programmes and community development programmes;
- secretarial services;
- compilation and dissemination of indigenous knowledge;
- sports and entertainment;
- telemedicine; and
- demonstration site for modern agricultural practice and, in partnership with the FAO, linking of research centres with extension agents and rural farmers.

To develop the local capacity to appreciate, use and manage the MCT, more than 20 community members were trained in the use of ICT and as trainers during the period March – April 1999. Four of these trainees showed the particular commitment and capacity needed to sustain the training programmes, and to date they have trained more than 80 users, including schoolchildren. Their remuneration is calculated at a rate of 30% of the total revenue generated by the ICT training programmes. Such a strategy has provided the kernel of the MCT and a stable, solid foundation for the MCT's services (Pact Institute 1998).

The MCT has planned a series of outreach programmes to take the MCT services closer to the people. These are in response to MCT evaluations revealing low participation rates by communities farthest away from the MCT, and particularly by women. The activities include mobile ICT demonstrations, community reading centres and telecentre clubs in schools.

Those engaged in local community development programmes often require information from multiple sources including the Internet. Such information is searched for by the MCT's staff and/or information brokers within the wider community, repackaged by the MCT and disseminated back into the community in forms (such as audiovisual materials) appropriate to the target groups.

In support of the indigenous knowledge programme, the MCT collects local knowledge and practices in health and agriculture and repackages this in video, audio and print for interested members of the community. Materials on organic farming, medicinal plants and traditional birth attendants have been collected with the assistance of those with special local knowledge in the community. As well, the MCT has documented local indigenous knowledge on one of the Heroes of Uganda and a son of the community, I.K. Musaazi, who is regarded as the father of nationalism in the country.

The MCT also provides telemedicine services for the Mulago and Nakaseke hospitals, enabling health workers to consult with each other by phone, fax and e-mail. This is improving the provision of health services, especially where professional capacities are scarce. The highest level of service provision involves a portable tele-invivo machine capable of acquiring and transmitting 3-D images to facilitate teleconsultation over a single data set.

To capture the interest of potential users, the MCT has also organised sports events, video shows and other free events.

COSTS AND FUNDING

The MCT receives budget support of up to 60% of its running costs from its international partners — the IDRC, ITU, UNESCO and DANIDA — and the Government of Uganda. The total international budget is US\$396,425. The national and local partners are investing about US\$124,000 over the three years of the project, including about US\$68,000 from Uganda Telecom for the telecommunications infrastructure. The MCT has also received donations and materials from other local and international organisations.

The remaining 40% of the budget is provided by the local community. As a long-term investment, the community is providing a permanent building for the centre at an estimated cost of US\$25,000. The community has also been assuming greater responsibility for building maintenance, staff salaries and allowances, security guards and other running costs.

The financial year 2000 – 2001 will mark the introduction of tuition fees by the MCT. All schoolchildren will be required to pay the equivalent of US\$0.59 per year towards the cost of the services provided by the MCT. More than 8,000 students are eligible to pay this tax, which will represent a major community contribution to the centre amounting to well over US\$4,000. This strategy has been embarked on with strong support from the community and is extremely timely, given that the pilot phase will end in March 2002. It also generates a stronger sense of ownership among the beneficiaries, and makes the MCT more accountable to the community.

Financial self-sufficiency is planned for within three to six years and it is anticipated that the community will gradually take over full responsibility of the operation of the centre.



Nakaseke Multipurpose Telecentre.

ACCOMMODATION

Nakaseke MCT is currently temporarily housed in a former community centre building. The T-shaped building contains three rooms, a large hall used for the resource centre, ICT training and video shows, plus two smaller side rooms: used for administration and as a business centre. Some of these services are currently restricted by the accommodation, a problem that will be largely resolved when the MCT moves into the new public library building that is to be its permanent home.

MANAGEMENT

The MCT is currently owned by the Nakaseke Sub-County Council. It is anticipated that after three years the telecentre will be put under contracted management on behalf of the community.

Three committees have been established to plan and manage the MCT: a Management Committee, a Local Steering Committee and a Core User Group.

The Management Committee, responsible for policy-making and co-ordinating donor support, is composed of representatives of the MCT's key stakeholders. This committee meets regularly.

The Local Steering Committee monitors and advises the Management Committee and Local Council on the implementation of the MCT. It has representation from the Public Libraries Board, Uganda Telecom and other agencies involved in areas covered by the project. It provides technical advice and support to the MCT staff and its members are only a phone call away. This group will also be the foundation for the community ownership management system after the pilot phase and, as such, will act as the technical arm of the centre.

The Core User Group is representative of the users and ensures that their interests are reflected in the design and service delivery of the MCT's applications.

A part-time Project Officer, based at the National Commission for UNESCO in Kampala, is responsible for the day-to-day project management and co-ordination among the local, national and international parties.

STAFFING

The MCT has a staff of four: the Manager, Assistant Manager, Information Officer and Assistant Information Officer. The Manager and Information Officer were hired from Kampala and are responsible for training their two assistants who are local persons paid for directly by the community. This strategy helps the centre develop local capacity and thus work towards self-sufficiency. The other members of the team are four local "ICT champions" who received their training in the initial months of the MCT and now manage the ICT training programmes, paid on a commission basis.

TRAINING MANAGERS, STAFF AND USERS

The MCT's staff is regularly provided with short refresher courses (especially the ICT trainers). A number of innovative strategies and critical skills have been developed as a result of such training interventions.

The Nakaseke team has also supported the development of telecentres at Buwama and Nabweru, which are supported by IDRC under the Acacia Initiative, and worked closely with two local NGOs (Madi-Okollo in northwest Uganda and Njeru in eastern Uganda) to help start similar initiatives. A number of development groups have also visited the centre with a view to learning from its experiences and establishing such centres in their areas.

PUBLICITY

Publicity is critically important to the MCT project. A year before the launching of the MCT services, an extremely energetic awareness campaign was conducted, involving community leaders and other opinion-shapers and creating focal points and champions within the local communities. This campaign, supported with brochures, posters and

guides in both Luganda and English, generated a lot of interest in the community and provided invaluable feedback to the planning process.

In recognising the potential for interesting possible users by word of mouth and through people familiar with local needs and culture, another top priority was the creation of a core group of ICT users in Nakaseke. The idea was that this group would then interest others in the use of ICT or act as information brokers for those with no capacity to access the ICT services on their own. This approach is seen as critical to helping people use ICT, improving general living conditions in the community, and achieving the sustainability of the MCT.

Contact with the community is today maintained through the Core User Committee and Local Steering Committee. The MCT also maintains a suggestion box for feedback from users.

ACCESS

The MCT is open Mondays to Saturdays from 8:00 a.m. to 6:00 p.m. The community has, however, requested that the hours be extended to 8:30 p.m. on those days, and that Sunday openings be considered as well.

As described above, users are required to register on their first visit and are then able to gain access by using their registration cards on all subsequent visits to the MCT. The value of this automated system lies in its anonymity and simplicity. Earlier attempts to have clients fill in their details on forms for every visit simply met with resistance and scepticism.

TECHNOLOGY

Uganda Telecom provided a special telecommunications link to Nakaseke, waiving the normal requirement for justification in terms of economic potential and financial viability. A number of technology options were experimented with to provide ICT services at Nakaseke. The area had no communication infrastructure and the telephone link had to be extended with copper wire from 16 kilometres away. This line was hooked on a "Pair Gain," equipment that has the ability to multiply a single line into multiple lines. However, this system became over-strained after several months and collapsed.

An "Amper Licea" on a 13-element Yagi Antenna was later installed. The MCT is in a "pseudo tele-shadow" of the Mobile Telephone Network (MTN) cellular network. The Yagi Antenna amplifies the cell presence and strengthens the signal. This technology, which is still in use today, supports telephone, fax and Internet/e-mail at 9.6 Kbps with considerable success. It has been shown to be a perfect solution for isolated areas with limited cellular presence. Nakaseke MCT was the first institution to use the Amper Licea in Uganda. The Buwama Telecentre has since adopted this technology.



The community is served by a hydroelectric power system that is very erratic and can be off for up to 78 hours in a week. The MCT has a back-up system of four 117A deep-cycle batteries, a battery charger of 70-amp, 24-volt DC and two 500-watt inverters. In the event of power failure, this system provides up to five hours of power, depending on the volume of use. A solar power system is being considered as a better alternative.

The MCT is equipped with eight computers on a LAN, including one Toshiba Satellite 2520. Half of the computers are Pentium IIs, while the others are 486 processors donated by a local NGO-Uganda Connect project. This interesting mix of computer processing speed demonstrates that 486 processors are still very useful in basic computing applications. It also shows that ICTs for rural communities can make use of "laid off" computers with a mix of Pentiums to benefit from applications requiring multimedia capability.

RESEARCH AND EVALUATION

As Heather E. Hudson describes in Chapter 15 of this book, the Pact Institute methodology (Pact Institute 1998; Versel 1999) was used to identify users' needs and characteristics and the usage patterns in three months of the MCT's first year of operation. A number of conference and research papers have been written on the Nakaseke MCT, including those by Dahms et al. (1999) and Fuchs (www.futureworks.ca). More documents can be accessed from the MCT's Web site, www.nakaseke.or.ug.

The MCT has yet to undergo a major summative evaluation. A mid-term evaluation is due at the end of July 2000. However, internal evaluations have been carried out and these have pointed to:

- low usage of the centre by women;
- constraints imposed by the poor telecommunications infrastructure and low bandwidth;
- a demand for local content creation; and
- the very real need to tackle illiteracy in the community.

CONCLUSIONS

The very fact that the MCT was dealing with computers and ICT motivated many members of the community to participate, partly out of curiosity's sake. However, it also deterred some who looked upon it as too academic an initiative. Localising the ICT applications to a level understandable by all community members — providing telephone access, video shows, and games and sports for young people — helped to sell the idea of the centre.

The MCT is demystifying computers and, by making daily newspapers available, is helping to keep the community up to date with what is going on in the country. Consulting with community leaders and opinion-shapers during the mobilisation process and organising consensus-building local workshops and community meetings also helped to bring the telecentre concept much closer to the beneficiaries. To some extent, it may be said that the MCT has now become mainstream with the general activities and local politics of the community.

The MCT has been positively influenced by:

- the zeal and interest of the local leadership in making the MCT a sustainable reality;
- the fact that it is the only such centre in the whole district, which was a source of pride for the community and gave the MCT a monopoly status;
- the partnerships that have been forged both at local and international level and that have brought in a lot of useful experiences and support; and
- the creativity and dedication of the staff and stakeholders.

The MCT has been constrained by:

- the poor telecommunications infrastructure that has particularly affected the telemedicine and other heavy file transfer applications;
- the erratic electric power supply;
- the high rate of illiteracy in the community; and
- restricted accommodation for facilities.

However, those running the project have been greatly encouraged by the feedback from users. For example, here is what Godfrey Mugabi has to say about the MCT:

I am one of the 20 students who participated in the ICT training of trainers programme during the period March – May 1999. I had never used a computer before, but I had heard a lot about it. I heard that the computer is a very clever machine, all knowing and capable of anything. I had never touched a computer, neither was it anywhere in our community. When the telecentre was launched in March 1999, I was very excited and joined the trainees for a training of trainers course. We were taught how to use computers in a variety of ways like typing letters, making reports, communicating by e-mail/Internet and making Web sites of our own. Fortunately, our trainers used a mix of local language (Luganda) and English, which helped us to understand faster and better. I recall the name given to the mouse, as Kameese because it looks like a small rat that is locally called Kameese. At the end of the second month, we were able to use computers freely and some of us designed simple Web sites.

During June – July 1999 we had our first programme as trainers. We worked with our trainers during the programme and it helped us to fine-tune our new skills. Today, I with three other colleagues have continued with the rest of the community in ICTs. Not only with computers but also other information-related equipment at the telecentre. The biggest challenge we have is the high levels of illiteracy in the community. We still have to translate several things into the local language.

The next few years will undoubtedly witness the establishment of even more telecentres in rural and remote areas of Africa. However, only those centres that are built upon the existing social structures of the communities they serve will be sustainable, both in terms of achieving equal access for remote communities and meeting the challenge of ever-changing technology.

It seems likely that it will take a long time for the private sector to show any interest and roll out ICT services in remote and rural Africa, and that the so-called “high-cost

service areas” will always be left out of the equal access equation. Governments and other agencies need to put in place policies and proactive strategies to stimulate partnerships between public providers, the private sector and the rural communities and to provide technology and locally relevant content and services into the disadvantaged regions. Telecentres, too, will probably need public-private partnership.

Ultimately, however, it will be the applications, the creation and repackaging of knowledge and information that will continue to be the greatest challenge to the relevance and sustainability of telecentres. The technology and infrastructure may be compared to a pipe, and the water running through it to the content and applications in an MCT. Unless the water supply is regular (reliant) and clean (relevant), the residents may never turn on the pipe. Governments need to take the lead in providing public information on the Internet — about taxes, grant schemes, policies, new legislation, people’s rights and so on — to add value to the technology. The Government of South Africa has shown the way in this regard. Content creation in developing countries will always be challenging, given the diversity of the users and their high illiteracy in English, and will require translation of much of the available information.

Some telecentres will only be simple user-pay phone shops. Others will be multipurpose, one-stop centres with a variety of ICT tools and services. On the basis of the Nakaseke experience, it will be important for the telecentres to employ a creative combination of commercial skills to ensure that they are sustainable, profitable, and innovative in developing people-sensitive strategies to reach the un-reached. Those who sponsor and invest in telecentres need to give careful consideration to:

- *User needs and translating these into services and content* — This is a key consideration in determining an appropriate model for a telecentre. It is important at the earliest possible stage to articulate the core service—that which is most critical to the community or will most quickly attract users—and then structure the other services around this.
- *Sustainability* — It is vital to determine at the outset those factors, measured by qualitative and quantitative variables, that will ensure a sustainable service.
- *Resources* — The hardware, software and “humanware” necessary for accomplishing the task must be in place.
- *Strategic partnerships* — These can facilitate networking, content creation, applications and the mobilisation of users.
- *Local champions* — Whether individuals, institutions or both, having these will create the initial impetus and support for the MCT and form an invaluable stakeholder group and initial client base that no “outsiders” can ever achieve.



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CHAPTER 11

A PILOT TELECENTRES PROJECT IN MOZAMBIQUE

Polly Gaster

*Eduardo Mondlane University Informatics Centre,
Maputo, Mozambique*

LOCATION AND CONTEXT

Mozambique is a long country of 799,380 square kilometres with around 16 million mainly rural inhabitants, 70% of whom live in absolute poverty. Having won independence from Portugal in 1975, the country suffered from being a neighbour to the white minority regimes of Rhodesia and South Africa and its infrastructure and economy were almost totally destroyed by an intermittent war that only ended in 1992. When peace finally came, Mozambique was officially classified as the world's poorest country. By 1999, it was still seventh from the bottom in the U.N. Development Programme's Human Development Index. And in 2000, floods and cyclones in the southern and central areas of the country wiped out many of the socio-economic advances made since the war years.

The Namaacha and Manhiça districts, where Mozambique's two pilot telecentre projects are based, are similar in size and are both within easy reach of the capital city, Maputo, about 75 kilometres away by good highways. They are, however, quite different in their population sizes and economic bases.

Lying to the south of Maputo, in the rolling hills bordering Swaziland, Namaacha district covers 2,144 square kilometres and, according to the 1997 Population and Housing Census, has a population of 31,259, with just under one-third living in urban areas. Its main economic activities are small-scale cross-border trading, farming and tourism and its only industries are a factory that bottles mineral water and a sawmill, both of which are privately owned. There are a number of educational institutions in Namaacha and the town looks deceptively wealthy. Solid houses dating from colonial days line its main street and dot the surrounding hillsides, but these are far from the norm.

Manhiça district covers 2,380 square kilometres, has a population of 129,476, or four times that of Namaacha district, and an urban population of around 22,000. Its main economic activities are farming, agro-industry and catering for travellers and migrant

miners. Manhiça has significantly larger numbers of people in the higher income bands than Namaacha, and particularly in the top band of 3,000 contos plus (about US\$251 in 2000). The town of Manhiça is a typical small African town, full of bustle and movement quite alien to Namaacha. It is located on the main road north, overlooking the Incomati River and the fields and sugar plantations that were destroyed by the floods of 2000. One reason for choosing Manhiça as a pilot site for a telecentre was that, in 1998, it was due to become one of the first towns in Mozambique to elect its own mayor and assembly as part of a decentralisation programme.

HISTORY

The pilot telecentre project was conceived at a workshop called “Mozambique: Towards an Information Society,” organised by the Eduardo Mondlane University Informatics Centre (CIUEM) in Maputo in early 1997. This had been organised in response to the Organisation of African Unity’s adoption in the previous year of the African Information Society Initiative (AISI) proposed by the Economic Commission for Africa. The key concerns were to find ways of extending access to, and use of, information and communications technologies (ICTs) for those unable to afford individual ownership of the technology; apply these to developmental applications for the poorly educated, unemployed and underemployed; and ensure that Mozambique was not merely a consumer of content from the developed world, but a producer of material for its own indigenous needs.

The Canadian International Development Research Centre (IDRC), which was launching the Acacia Programme, agreed to fund a feasibility study to verify the viability and acceptability of the telecentre concept in Mozambique and make recommendations for a pilot project. This study was led by CIUEM and carried out by a multidisciplinary team from the university and the national telecom company (TDM). The government was concurrently thinking through its national ICT policy and granted full support to the project. The governor of Maputo province was particularly enthusiastic about the idea, telling the team that although the provincial government did not yet have any computers, he had used computers and e-mail in his former role as a trade union leader and was well aware of their potential benefits to the community.

The feasibility study team developed a working definition of a telecentre for Mozambique and a methodology for selecting the sites and testing out conditions. It was decided that the pilot project should aim for supporting local development and reconciling the need for sustainability with the need to serve the poor. It was decided to leave the more commercially oriented cyber café type of operation to the private sector and conduct the pilot project in two rural areas where the technical conditions, needs and potential applications offered the best chances of success. By these criteria, the two district capitals, Namaacha and Manhiça, appeared to be the most appropriate sites. They already had at least two public phones provided by TDM and several privately operated booths, so the primary need was not simply to install telephony but to introduce computers, computer peripherals, e-mail and so on, and to test them in these particular contexts.

A survey of potential users was conducted by means of a questionnaire directed at a stratified sample of teachers, students, professionals and representatives of the private sector and local organisations. The findings were similar in both towns:

- The majority of the survey respondents declared higher levels of expenditure than income.

- The monthly income distribution lay in the 501 – 800 contos (US\$42 – \$67) range with teachers in the 800 – 1,200 contos bracket.
- The state was reported as being the largest employer.
- Fifty-three per cent of men and 56% of women worked in smallholder agriculture.
- Five per cent of men and 8% of women were teachers, nurses or other professionals.
- Forty-five per cent of the sample had completed 8th grade or more, but women had significantly lower levels of schooling than men.
- Expenditure on housing and food was a top concern, but 20% of respondents defined education as their second expenditure priority and 37% as their third (33% put transport in third place).
- Asked to rank priorities among potential telecentre services, respondents put computer training in first place by a long margin, followed by access to distance learning and access to information.
- However, asked to indicate willingness to pay for telecentre services at three different price levels, respondents still put computer training in first place, but followed this with phone access and photocopying. Access to information was ranked low.

The consistency of these survey findings suggested that the telecentres could be useful for meeting educational, communication and access needs, that there would be a demand, and that people would be willing to pay for these services, albeit at the lowest prices. However, such findings need to be treated with some caution. Expressions of willingness to pay should never be confused with actual ability to pay, especially where income levels are low. There was also no guarantee that the explanatory leaflet and verbal descriptions were really understood, and the people had been asked whether they wanted things such as e-mail (translated into “quick and cheap communication”) which they had never actually seen in action. And if people are asked if they want something new, they are always more likely to answer yes. Ultimately, the answers to the questions had to be tested in the realities of the pilot telecentre project.

AFFILIATIONS AND STRATEGIC ALLIANCES

At the local level, the main alliances were with those most likely to be the immediate users of the telecentres — the educational institutions, professional groups and local government, private sector and community organisations. The initial fieldwork helped to raise awareness and establish friendly working relationships with these potential stakeholders, and particularly with the schools. Once the pilot project was approved, one-day workshops were held in Namaacha and Manhiça to present the survey’s findings, demonstrate the use of e-mail and the Internet, and discuss the steps and resources needed to establish the telecentres. Further local involvement came through contracting local builders, electricians and carpenters to help set up the telecentres. Many of these groups are now using the telecentres on a day-to-day basis, but such is the level of local institutional development that it is somewhat unreal to talk of “strategic alliances.” One foreign non-governmental organisation (NGO) working in Manhiça district makes use of the telecentre; otherwise there is little foreign donor activity.

At the central level, the information-gathering process resulted in contacts with rural development and other governmental agencies and national NGOs. There also appeared to be prospects of co-operating with community radio stations, distance education

providers, and health and justice authorities, disseminating public information and supporting their local representatives. However, little of this has so far come about.

Attempts to forge partnerships with private-sector equipment suppliers was a little more successful, but only to the extent of gaining some discounts and offers of free technical support. One computer supplier who initially expressed interest in working with the project lost all interest on finding that it was intended for rural areas, suggesting that it would be "so much easier if it were switched to Maputo." And, notwithstanding excellent collaboration on the ground from TDM when setting up the telecentres, it refused to consider providing any additional subsidy towards the cost of e-mail/Internet calls until government policy allowed for this.

FUNCTIONS

The telecentres provide users with access to computers for word processing, games, CD-ROM usage, e-mail and Internet. However, the most popular services to date are the public phones, fax, photocopying and binding, library, TV and video.

Computer training courses were launched at the end of 1999 with the support of the CIUEM Training Department. Although these courses are much in demand, unfortunately there are no computers available for general access. However, the plan is to train intensively, build up a group of committed users, and then re-organise the timetables to allow more general access towards the end of 2000.

Such is the quality of the telecommunications, levels of skill and level of ICT usage in Mozambique that it is far too premature to talk of teleworking or hooking the telecentres into distance education networks and the like. For ICTs to be used in such ways, the users first need to have other people they wish to communicate with via e-mail, and then they need to have educational and information materials that they want online, in languages and forms they can understand. Ways must be found to create such systems. Accordingly, an important long-term aim of this project has been to create awareness of the potential for information gathering, exchange and networking and to provide training in Web site design and so on. Newspapers containing information downloaded from the Internet are already features of the project. It is planned to launch local newspapers, and many other such projects are now under discussion or actually at the planning stage. With the expansion of the base of technology-literate users, the telecentres should really come into their own over the next few years.

COSTS AND FUNDING

The investment costs are fully met under the terms of a four-year commitment by the IDRC Acacia Programme, and the content sub-component described above is funded by UNESCO. This funding was requested on the basis of an economic study and business plan which showed that, on the basis of real costs, installed capacity and estimated demand, the telecentres could just about break even on current expenditure by the end of their first year and would probably continue to improve their results. They could not, however, be expected to cover the depreciation costs of US\$7,000 – \$10,000 per year. In making these calculations, the computer equipment was depreciated at 25% a year to allow for the rapid evolution of hardware and software and to ensure that the communities kept up with technology change and had the best and fastest ICTs. This depreciation rate may in fact prove to be overly optimistic, as the wear and tear of public use may shorten the life of the computers and peripherals.

The telecentres operate on an autonomous commercial basis and all of their services are on a user-pay basis. Subsidies are built into the e-mail and Internet access to offset the high cost of inter-urban phone calls to the nearest Internet service provider (ISP) in Maputo and to build up the number of users. Wages and running costs have been paid out of revenue since the second month, with the exception of the phone bills which are currently still under discussion with TDM. The centres' staff are made fully responsible for all administration and financial management. The aim is to establish the telecentres as long-term enterprises, with staff reliant for their incomes on their production and service provisions, rather than to inculcate a "project mentality" with funding rolling in regularly from external sources, regardless of what is actually happening on the ground.

The planned strategy for covering the cost of subsidies and extending services to new groups of users was to seek sponsorship from local or national organisations. To date, however, little has been done to promote such schemes. Meanwhile, various targeted activities are funded by the IDRC from the sponsorship component of the project budget.

ACCOMMODATION

The two centres are trialling two types of accommodation: co-location and stand-alone.

The Namaacha telecentre is based in a former workshop within the precinct of the local secondary school to which it pays rent and with which it has developed a special relationship. It is housed in one large room, about 10 metres x 12 metres.

The Manhiça telecentre is located on the town's main street in an outbuilding that was formerly a store, set between a café, to which its pays rent, and a church. Again, given the small scale of the project, it was considered better to house all of the services in a single work area where the staff could keep an eye on things.

Both telecentres have access to running water and toilet facilities.

MANAGEMENT

At the local level, the telecentres are managed on a day-to-day basis by their respective staff and supervised and supported by Local Monitoring Committees (CALs) whose members are representative of all the key sectors. At the central level, the project is managed by the CIUEM which provides the technical and maintenance support and maintains regular contact both with the centres' staff and the CALs. The CIUEM owns the pilot project, and one of the CALs' tasks will be to propose the ownership of the centres beyond the pilot phase. The telecentres did not come about through any prior spontaneous local demand, but as an external initiative by the university. Therefore, the challenge now is to manage the necessary appropriation by the local beneficiaries. As in any development process, this is taking time to work through.

STAFFING

Each centre has a manager, an assistant and two guards (day and night). All of these staff are locally recruited. Their wages approximate to local rates, despite the fact that these personnel have greater-than-usual responsibilities and accountability for the technical resources and money.

All of the staff have at least 10th grade, and the Manhiça manager had completed a middle-level statistics course in Cuba. The Manhiça manager and assistant had prior computing experience, having worked on data input at the local Health Research Centre. When it came to recruiting staff at Namaacha, it turned out that there were no candidates with these skills. Selection therefore had to be simply on the basis of work experience and initiative.

TRAINING

The centres' staff were given initial training by the CIUEM in Windows, Word, Excel, e-mail/Internet, hardware maintenance and troubleshooting, financial management and administration, and promotion and marketing. The project budget covers annual retraining and staff have subsequently received on-the-job training in technical and administrative matters and in organising and teaching computer courses. The staff consult frequently among themselves and have organised exchange visits between the two telecentres as part of their self-help learning.

The members of the CALs were also invited to take part in the initial training programmes, partly to give them some tangible benefits and partly to encourage their ongoing commitment and participation.

Courses are provided for the general public in Windows, Word, Excel and e-mail/Internet. Web design courses are planned for. In providing computer training, as in much else, Namaacha has had greater difficulties than Manhiça because its staff have less computer experience. However, they have worked hard to catch up. The computing courses are taught to groups of six (two people per computer), using training manuals produced by the Manhiça telecentre staff and approved by the CIUEM after evaluation on the very first courses. Those graduating from these courses receive certificates.

PUBLICITY

The first major publicity campaign centred around the telecentre inauguration ceremony in Manhiça in August 1999. Leaflets were prepared and distributed in the town and administrative posts, considerable coverage was given in the press, radio (particularly the local language radio) and TV, and the event attracted many people and generated considerable interest.

The telecentre staff have since produced more leaflets, wall posters and wall newspapers based on material from the Internet. One member of the Manhiça CAL observed, "In Manhiça these days, a document practically isn't considered a document unless it's computerised."

Staff have also encouraged the CALs and specially recruited community volunteers to help in spreading the word. The Namaacha centre has produced or supported local cultural and entertainment activities to attract more young people to use the services.

The CIUEM has created a Web site for the telecentres (www.telecentros.org.mz), but this is not updated regularly. Once the telecentre staff have been trained in Web design, this site will be largely their responsibility. One difficulty using the Web to promote international interest is that all the materials are currently in Portuguese and nobody has the time or funding to translate these into English or other languages.

ACCESS

To facilitate those people who are in jobs, the telecentres open later and close later than shops or offices — typically, from 9:00 a.m. to 1:00 p.m. and 3:00 p.m. to 6:00 p.m. Mondays to Fridays, and from 9:00 a.m. to 12 noon on Saturdays. There is great pressure for the centres to open all day on Saturdays, but the problem here is ensuring that the staff are not exploited. As it is, staff often operate informal systems of flexi-time in order to fit in their training.

There are burglar bars and outside lighting for security and wall safes for the money. The guards are supposedly on duty 24 hours a day, but they also clean, garden, fetch water, run errands and attend to the public, so in practice they are not always there. So far, however, security has been relaxed, the doors stand open all day and the CALs and staff do not expect any trouble. Winning local support and involvement seems to guarantee the safety of the premises, but the possibility of outside gangs attracted by the thought of the computer equipment can never be ruled out.

TECHNOLOGY

Each telecentre is equipped with four computers. One is used for management purposes and has greater capacity and could be used as a server. The other three are for public use. These are connected in a local network to an Internet hub, modem and dedicated phone line for e-mail and Internet access, and to an ink-jet and laser printer. Each computer has a UPS (uninterruptible power supply) and surge protector, and an AVS system is also installed by the fuse-box. The electricity system is earthed and there is a lightning conductor.

After much discussion it was decided to use the Windows 95 operating system. This has the advantage of being simpler and requiring lower levels of technical knowledge than UNIX or LINUX, but the downside is the difficulty of protecting the configurations from human error. Microsoft Office and Pegasus Mail account for the main software. Using the English versions of these was a contentious issue, but English-language software is the norm in Maputo, so it was felt that this was more appropriate for those needing computer skills for employment purposes.

E-mail access is by ordinary phone line and dial-up to the ISP, which is currently the CIUEM. A leased line would provide better quality, but the pilot aims to test conditions that can be replicated in other such regions. There is also the question of the cost to volume-of-business equation which can only be answered through practical experience. If volume shows a sufficient growth trend, the cost of a leased line may be justified.

Placing public phones and photocopiers in the telecentres has proved successful in attracting people from all walks of life, people who might be initially fearful of computers. In the first quarter of 2000, Manhiça had an average of 4,000 users a month and Namaacha, 8,000 – 9,000.

RESEARCH AND EVALUATION

Research and evaluation are expected to be integral components of all Acacia pilot projects. However, it has proved difficult to make time for this. So much effort and attention has gone into simply getting the telecentres off the ground and, for CIUEM,

managing this project has been but one of many tasks, without even an extra part-timer to assist with the work.

From day one of the project, an anonymous usage monitoring and database system was built into the centres' operations — a daily chart wherein visitors are registered by age group, gender and service used. The figures are aggregated monthly. A membership card system for computer access has since been introduced, partly for ease of use and partly to collect more data about users in a non-intimidating way. Income and expenditure are summarised in monthly reports and all equipment failures, power cuts and other technical problems are also carefully logged.

The aim now is to complement such basic quantitative information with more qualitative research, conducted over time. This work began in August 2000, using UEM students to do the legwork. A mix of sample surveys, interviews and direct observation techniques are being used to establish who uses the telecentres and for what purposes, who does not use the centres and why, the quality of services, and the sustainability of the centres. The fundamental question is, of course, what impact are the telecentres having on local development? In this regard, it is the view of the project team that measuring impact on individuals and organisations is far more realistic than basing grand claims on more macro trends.

CONCLUSIONS

The telecentres had their first birthday in August 2000, and in Namaacha a programme of cultural activities, sports and entertainment attracted large crowds. It is really far too early to draw conclusions as to the telecentres' success or otherwise. However, the project has proved to be an intensive learning process for everyone involved.

The positive factors have been:

- the climate of political support at both the national and local level;
- the fact that the project was designed and is managed by a known and respected national university and a multidisciplinary team that understands local realities, rather than consultants parachuted in for brief visits; and
- the presence of a keen and dynamic district administrator in Manhiça who has helped to gain local involvement over time.

The negative factors have been:

- the poor quality power supply, including frequent power cuts, particularly in Namaacha;
- the high cost of phone calls, impeding Internet use; and
- Namaacha's small population base and low level of development, which have been reflected in the quality of the centre's staff and the less dynamic Local Monitoring Committee.

Advising others may often seem like stating the obvious, but there are several points to be made from the Mozambique experience. The first and most important is that rural telecentres must be regarded as development projects rather than technology projects. Looking to new technologies as some kind of quick-fix to existing or development problems is fatal. By the same token, the practical and technical difficulties of establishing telecentres must not divert attention from the main goal: improving people's well-being over the long term.

Second, while there are undoubtedly some general rules and principles that must be applied in planning and providing the services and integrating these into the community, there can be no single fixed model for telecentres. There are vast differences in context not only between developed and developing countries and between different countries on the same continent, but — as the Mozambique experience has shown — also between towns only 150 kilometres apart. The current attempts to systematise and produce common methodologies, manuals and the like for telecentres runs the risk of mystifying the concept, frightening off people and forcing premature conclusions on decision-makers. Anyone wishing to become involved in starting a telecentre should find out as much as possible about other people's experiences, consider how these relate to the local circumstances and culture, and then adapt and build from these.

Planning for sustainability is the third point. It is imperative to ensure that such projects do not collapse as soon as donor funding runs out. Few African countries are in a position to provide much government funding for telecentres, but they can provide policy incentives, such as telephone subsidies and tax exemptions for public access centres, and specific current budget funding for telecentre users such as local government institutions. Governments, NGOs and other agencies must therefore try to co-ordinate their plans so that there is a solid core of support for public access centres rather than investment in dispersed and individually used equipment. Investment is expensive and running costs and depreciation must be projected as realistically as possible.

Fourth, the managers of such projects must ensure effective training, technical support and maintenance back-up. The CIUEM technicians complained of being repeatedly called out only to find that human error was the real cause of the problem.

Finally, managers must expect to spend a lot of time trouble-shooting, especially in the early days of the centres. In the Mozambique experience, management time had to be given in much larger measure than originally planned or budgeted.

The future of the Mozambique telecentres is inevitably linked to economic growth, political and social stability, and the absence of further major natural disasters. Access to ICTs must be provided by one means or another to the rural and poor of the country. There is no point arguing that poor countries cannot afford this. Those who fail to get onto the information highway will fall even farther off the map. Whether telecentres in their present form prove to be successful or not, some method of community-based access is the likely way forward. It must be a case of try and try again until a solution is found.

Future technologies may help, reducing the need for power and telecommunications infrastructure and costs, but so far the cost is high. There is a tendency towards using a "commercial model" for telecentres, in the name of sustainability and public-private partnership. In remote rural areas, this will probably mean opting for the "phone shop plus" model rather than the fully fledged developmental telecentre model, and setting up centres where demand already exists. Such initiatives can undoubtedly bring great benefit. However, a likely consequence of this is that the really poor will continue to be excluded from the benefits of ICTs in favour of the more prosperous farmers, small entrepreneurs and community members; and the proactive interventions in content-gathering, production and dissemination — all of which need time, effort and money — will be sacrificed. International support will therefore still be needed in countries such as Mozambique, as will imaginative use of development funds provided by governments.

Major developments in other areas will encourage the establishment of public access centres. There will be progressive development of services and activities based on ICT, from distance learning to e-commerce, more content in local languages and a dramatic increase in the national user base. National NGOs will increasingly use e-mail and Web sites to communicate and disseminate information horizontally — concerning women's issues, land struggles, human rights and so on — and so, likely, will governments. Other applications, such as teleworking and telehealth, will surely follow on naturally from these.

Adopting a "build it and they will come" approach, as in the Mozambique project, may not always be the most appropriate way. There is danger in building telecentres prematurely, before ensuring that the needs and useful applications are there. But we had to start somewhere and the Mozambique pilot telecentre programme is showing that once started, a new, mutually reinforcing dynamic comes into play. The lessons learned will contribute to the long-term achievement of our goals.





CHAPTER 12

THE DAIMLERCHRYSLER DISTANCE LEARNING SUPPORT CENTRE IN MASERU, LESOTHO

*Leslie Howard
Focus Communications*

LOCATION AND CONTEXT

The Maseru telecentre — or to give it its full and correct title, the DaimlerChrysler Distance Learning Support Centre — is based upon the Institute for Extra-Mural Studies (IEMS) of the National University of Lesotho at Roma, about 36 kilometres outside Maseru, the capital of Lesotho.

The 30,350 square kilometres highland kingdom of Lesotho, home to the Basotho people, is in southeastern Africa, bordered on all sides by the Republic of South Africa. To the east, the Drakensberg Mountains form a natural barrier, but to the west the country is accessible from a number of border posts, the nearest point of entry to Maseru being at Ladybrand in Free State.

Lesotho has a population of 1,550,000. Its people are largely subsistence farmers, its villages are scattered on mountain slopes and poverty is endemic. The winters are very cold, with the mountains covered in snow, and the summers are hot and dusty. The rural Basotho, who are renowned for their pony-riding skills, traditionally wear blankets and pointed woven grass hats. The mountain villages remain trapped in a time warp that is very attractive to tourists. In reality, however, population pressure is forcing settlement in marginal areas, with overgrazing, severe soil erosion and soil exhaustion being the result.

Lesotho's economy is based primarily on subsistence agriculture, livestock and remittances from miners employed in South Africa (though this work has declined steadily over the past several years). A small manufacturing base depends largely on farm products that support the milling, canning, leather and jute industries. Proceeds from membership in a common customs union with South Africa and from the Highlands Water Project (which controls, stores and redirects water to South Africa) form the majority of government revenue.

Compared to the mountain villages, the towns in the lowlands are more affected by modern economic and political events. In the capital, Maseru, people have adopted

western ways and styles of dress and many make their living from small business and street trading. Civil disorder in September 1998 destroyed 80% of the commercial infrastructure in Maseru and two other major towns. Most firms were not covered by insurance, and the rebuilding of small and medium business is proving to be a significant challenge. Many street traders have set up their stalls in the ashes of burnt-out buildings. There are 11 schools in Maseru, and many churches. Religion is important to the Basotho, who are predominately Christian.

HISTORY

The Distance Learning Support Centre was started as part of TELISA (the Technology Enhanced Learning Initiative of Southern Africa), which operates under the auspices of Technikon South Africa's Centre for Lifelong Learning. TELISA has, for a number of years, been involved in an Integrated Community Building Programme, a scheme that operates on the principle that no development project or programme can or will succeed without community support. The Integrated Community Building Programme has a wheel as its symbol, each spoke representing a special functional interest of the community and radiating out to support the whole. The programme is not a controlling body. Rather, each member and organisation retains its own identity and autonomy, but benefits from sharing with and supporting others for the greater good. Community Development Forums are organised to rally and stimulate public agencies, community groups, businesses and the professions to network and develop ways of utilising their natural, human and financial resources effectively. This is in the true nature of Ubuntu, the spirit of Africa, meaning "I am because we are — and we are because I am."

The aim of the TELISA telecentres initiative is to provide high-tech facilities to people who would otherwise be denied access to these. It is customary in Africa for people to share facilities, and such sharing of telecommunications facilities seems likely to be the norm in Africa for at least the next generation. The entire continent currently has fewer phone lines than New York City and yet students, communities and business people increasingly need to use the Internet in their studies and work. The TELISA telecentres also offer such services as typing, printing, photocopying and binding. The users pay for these services, but may in turn charge their own clients. The centres thus also provide opportunities for self-employment and local enterprise. They may be hosted by particular institutions, businesses or community organisations, but must run as independent businesses. TELISA seeks out the organisations and people willing to operate these centres and sponsors who will provide the initial capital costs in return for naming rights.

The way TELISA works, a community-building programme is normally expected to be in place before the introduction of a telecentre. However, in the case of the Distance Learning Support Centre, the project evolved somewhat differently. Joseph Gorgels of the Southern African Initiative of German Business (SAFRI), which has strong links with the Lesotho monarchy and government, had seen photographs of a community centre at Kgautswane in South Africa's Northern Province. This inspired him to approach DaimlerChrysler about sponsoring a similar centre in Maseru. Subsequently, Paul West, Director of Technikon SA's Centre for Lifelong Learning and TELISA visited SAFRI's head office in Stuttgart, Germany. DaimlerChrysler became convinced of the need for a telecentre in Maseru and, in view of the company's relationship with the monarchy, agreed that — should the stakeholders in Lesotho support such an initiative — it would sponsor the centre in return for the naming rights.

The next challenge was to identify the local stakeholders. The National University of Lesotho helped to identify people associated with the university and the Institute for Extra-Mural Studies (IEMS) who might be interested in such a centre. These potential stakeholders were invited to a workshop in Maseru in July 1998 and hosted by the IEMS. Paul West made a presentation on the TELISA initiative and explained how a telecentre could be run. Two representatives of the MicroData Corporation in Pretoria, South Africa, attended the workshop to discuss the technical aspects of the centre and gain first-hand knowledge of the needs and circumstances.

The workshop participants agreed that:

- the offer of sponsorship from DaimlerChrysler would be accepted;
- the IEMS would host the new telecentre; and
- the telecentre would be run as an independent business and should be self-sustainable.

A contract was then drawn up between DaimlerChrysler, AG (the sponsor), Technikon SA (the facilitator) and the National University of Lesotho (the host). On the basis of this, DaimlerChrysler South Africa released a cheque for the full sponsorship amount. Because the project was in support of education and development in the Southern African Development Community (SADC) sub-region of Africa, a tax receipt was issued to DaimlerChrysler.

The Technikon SA purchasing department assisted in obtaining the furniture and computing equipment for the centre. These items had to be purchased in South Africa because there was no company in Maseru that could provide the entire range of equipment and services needed to get the centre up and running. MicroData were contracted to provide these, because of their competitive pricing, understanding of the circumstances, and willingness to undertake the installation in Lesotho. Purpose-designed furniture to house the computers was ordered from a company with experience of fitting out another telecentre. Like MicroData, this company agreed to their staff travelling to Maseru to attend to the installation, and to honour the warranties even if they were in another country.

Unfortunately, the installations were then overtaken by the political upheavals of 1998. Shortly after the July 1998 workshop, opposition political parties began to confront the Lesotho government about elections held earlier that year. Sporadic violence broke out in the streets and there were even gun battles between different factions of the military and police. Violence continued to escalate until October 5 when SADC troops crossed the border from South Africa to stabilise the situation. While these troops concentrated on securing strategic installations in an effort to avert a possible military coup, looting and arson broke out in the main streets of Maseru and businesses were destroyed. A number of academic institutions were also targeted, including the National Teacher Training Centre and the IEMS, but fortunately the half-completed telecentre was left untouched, possibly because no one knew of its existence.

Finally, the centre opened for business on March 5, 1999, at a ceremony attended by local and foreign VIPs and the



local stakeholders. Political stability had returned, but there is still some sporadic violence which gives rise to some concern over the centre's security.

AFFILIATIONS AND STRATEGIC ALLIANCES

The TELISA initiative involves a number of stakeholders:

- World Bank (which has been an invaluable partner and donor)
- Distance Education Association of Southern Africa (DEASA)
- Southern African Initiative of German Business (SAFRI)

In the specific case of the Maseru Distance Learning Support Centre, the primary stakeholders are:

- Lesotho Distance Learning Centre
- Institute of Extra-Mural Studies, National University of Lesotho
- Institute of Education, National University of Lesotho
- Institute of Labour Studies, National University of Lesotho
- National Teacher Training Centre (Lesotho)
- University of Botswana
- University of Namibia
- UNISA (University of South Africa)
- Emlalatini Development Centre, Swaziland
- University of Swaziland
- Maseru Chamber of Commerce.

FUNCTIONS

The centre's prime function is to provide access to computer, Internet, telephone and fax services. It is also intended to act as a hub for gathering and disseminating information for education, training, development and business, and for providing office and communications services. The TELISA experience has shown that other services such as printing, laminating, photocopying and spiral binding can be of benefit to community development and so these are also provided.

Before the centre opened, the only public telephone facility within a 5-kilometre radius was a single coin-operated kiosk at the entrance to the IEMS, which was heavily used by students, school pupils and adults alike. The provision of an eight-booth facility in the Distance Learning Support Centre, with rates that undercut the phone shops in Maseru, attracts many potential users of other services into the centre. It is quite common to see 20 – 30 students waiting to use the phones, which are monitored by computer. Unfortunately, only four of the phones are currently in working order.

The primary beneficiaries of the Distance Learning Support Centre are the on-campus and distance education students of the educational and training institutions operating in Maseru, as listed above, and the pupils from the local public and church-run high schools and primary schools. Some of these schools have computers but no Internet access, and so use the centre for this purpose; some of the schools rent the centre for computer and Internet training for their pupils. Part of the centre's outreach

programme is specifically designed for school principals and teachers, the idea being that if they can be attracted into the centre, they will in turn bring in their pupils to introduce them to the facilities.

The Institute for Education, attached to the University of Lesotho, also rents the centre on occasions to train civil servants in the use of the Internet. Lois Sebatane of IEMS, the TELISA contact person for the project, reports that ex-patriots also use the centre's computers and Internet access.

It was always intended that the centre should also serve the members of the Maseru Chamber of Commerce. With the destruction of businesses in Maseru, the completion of the telecentre was considered to be even more urgent to provide support to small and medium businesses trying to re-establish themselves in Maseru. Currently, however, the users are predominantly the student community.

As well, the centre was intended to provide facilities for community meetings and workshops, and be a place for students to study. Again, it is more commonly used for the latter, with many students calling in between classes and sometimes after hours.

The centre's users come from up to 20 kilometres away, with most of those from beyond Roma travelling in by bus or taxi.

COSTS AND FUNDING

DaimlerChrysler donated US\$55,000 towards the centre's set-up, equipment purchase, and initial computer training programme. Before the unfortunate experience with the student managers, monthly turnover was US\$1,500 – \$2,000, which was enough to cover the centre's running costs. Run according to proper business principles, it seems likely to yield a profit. Lois reports, "People here are very poor, and even a charge of R10 (about US\$1.50) an hour for use of the computers is a lot for them. We are hoping that in the future the schools will be prepared to pay a monthly sum for the use of the Centre by their pupils. Then if we introduce an ID system, pupils from those schools will be able to use the computers free of charge."

ACCOMMODATION

The centre is situated on the IEMS campus of the university, opposite one of the local high schools, and on the main tarred road into Maseru from the south. There is a bus stop right outside the gate. The centre occupies one classroom-sized room in the IEMS, an institution that attracts many part-time students to its wide range of daytime and evening courses.

MANAGEMENT AND STAFFING

In keeping with the philosophy of maximising community involvement, the TELISA staff keep in close touch with the centre, but have no controlling role in its operations. Lois Sebatane of IEMS acts as the TELISA contact person for the project. The centre is run by a Management Board, with one representative from each of the educational institutions in Maseru, plus Lois. The Board is responsible for pricing the centre's services and finances in general. As with other TELISA telecentres, the centre was always supposed to become self-sustaining.

TELISA always stresses that the long-term financial viability of the telecentres must be planned for right at the very outset. There have been far too many examples in South Africa of Internet cafés having to shut down because they were non-viable and school, college and university computer centres being sponsored by external agencies and then failing because the institutions were unable to maintain them, even in relatively affluent areas. So the telecentre must levy appropriate charges for usage and, unless these can be subsidised in some way by institutions or organisations, the users must have capacity to pay. Lois observes that the centre would have run much more efficiently right from the beginning had it been operated according to a proper business contract. Unfortunately, the Board decided to let the centre be run by two students — a system that proved to be unworkable because, while the students were at their lectures, other students used the unsupervised facilities free of charge. The result was that the centre ran into serious financial problems.

The Board then decided to contract a private company to run the centre as a proper business venture with a salaried manager in charge. As of August 2000, tenders had been received from the Corporation of the National University of Lesotho and two private individuals, but the selection process had not been concluded.

Properly managed, the telecentre should be able to pay rent for its accommodation in the IEMS. Up until now, the university has been extremely generous towards the centre, providing this accommodation and Internet connection free of charge.

TRAINING MANAGERS, STAFF AND USERS

As soon as the centre was established, 10 potential student supervisors, nominated by members of the Distance Education Association of Southern Africa, were given initial training in using the computer equipment, word processing, Internet and e-mail in a one-day session by MicroData, the company that installed the system. The two most able students were then selected as supervisors to help the users. Since then, other students have been trained to help others in computing and thus develop the community's capacity to use the new technology for various purposes.

As shown earlier, training sessions have also been conducted with civil servants and by the schools. Further training activities are hampered by the fact that the Internet service, currently attached to the university server, is very slow. Lois suggests that it would be far better if the connection were through a commercial provider or a business rather than an educational institution. She believes that Internet service providers respond far more readily to the requirements of businesses than educational institutions.

PUBLICITY

The most common form of publicity for the centre is word of mouth. The teachers using the centre and being trained in computer use are its strongest advocates, informing their students and their families about the facilities on offer. The university community also circulates news of developments and activities. Once its new manager is in place, further publicity strategies will be needed to attract new users and backers.

ACCESS

The centre is available to all who are able and willing to pay. It is currently open Mondays to Fridays from 8:00 a.m. to 4:45 p.m. Under the new management, it is hoped that these opening hours will be extended.

TECHNOLOGY

Responsibility for providing the centre's telecommunications infrastructure lay with the Lesotho Telecom Corporation, a wholly-owned government company. At the time of establishing the centre, the laying of a 64 Kb line to the National University of Lesotho was in progress and it was decided to apply for an extension of this line from the university to the IEMS on the outskirts of Maseru, as well as for 10 voice telephone lines. The subsequent political unrest and problems with the company subcontracted by Lesotho Telecom Corporation to install the digital line to IEMS delayed matters, but eventually the work was completed and the equipment installation could proceed.

The centre is currently equipped with:

- 1 x IBM Netfinity 3500 server
- 10 x IBM PC 300 GL desktop workstations
- 11 x Samsung 14-inch 400b monitors
- 1 x HP Officejet 1150c printer copier/scanner
- 1 x laminator

The server is equipped with Microsoft Windows NT Server v 4.0, IBM Suite for Windows NT, and Lotus Notes Domino Server Single CPU. All computers have been fitted with Microsoft Office 97 and Notes Desktop Licenses. Upgrades now need to be paid from the centre's revenues by the new management.

Original documentation had to be provided for the company shipping this gear across the border, explaining that the equipment had been purchased through sponsorship from Germany and was destined for educational use in Lesotho. Because the legal purchaser of the equipment was a company to be formed in Lesotho, South African VAT (value-added tax) had to be claimed from the purchaser by the new company in Lesotho. A Lesotho general sales tax exemption than had to be applied for by IEMS on the basis that the equipment was being donated for educational purposes.

RESEARCH AND EVALUATION

Until now, research has been hampered by the fact that all of the funds have been dedicated to running the centre. When funding is forthcoming, a formal evaluation will be carried out. Meanwhile, the new manager will be responsible for monitoring developments and problems. Lois, who has been monitoring the centre's progress on an informal basis, says, "Despite current management problems, we do regard this as a wonderful facility for students and all those who do not have access to telephones, computers and the Internet. It has encouraged us to plan for other such centres. The IEMS has been granted land by the local chief in the mountain district of Mokhotlong, and we hope to secure funding to erect buildings there and install another centre. This would be wonderful for students in the area who are studying by distance education, and who could then access their study material via the Internet."

CONCLUSIONS

The DaimlerChrysler Distance Learning Support Centre has certainly experienced a steep learning curve and several traumas in its first year of operation. Unlike many other telecentres, the centre has started by focusing on the needs of local students and pupils,

and time is still needed for it to become widely accepted and absorbed into the business and wider community. Invaluable lessons have been learned by the Board in regard to business planning and management. The first year ends on an optimistic note, with those involved seeing a positive future for the centre.

The roles of TELISA in getting the idea of the centre off the ground and of DaimlerChrysler in providing sponsorship were pivotal. The centre also owes much to the university for its support and to the companies that installed the facilities and provided the initial training.

On the negative side, the political instability of 1998 and subsequent delays in getting the line connected hindered the establishment of the centre. After that, the connection of the Internet server through the university, combined with the recent management problems, affected the smooth running of the centre. Lois reports that there have also been poor lines of communication, with Board members often unavailable when urgent decisions were needed, and some cases of “too many cooks spoil the broth.” She is, however, confident that the centre will run much more efficiently with the appointment of a business manager reporting to a company that is accountable to the Board.

On the basis of the Maseru experience, it would appear that the following are critical considerations in setting up such telecentres:

- The centres must be set up from the outset to run as independent businesses in a self-sustainable manner, as well as productive hubs of community activity in disadvantaged areas.
- There should be a clear community need and demand for such services.
- The ownership of the ventures and their outcomes should be vested in the community at the very outset.
- Such initiatives need managers and staff who are energetic, have a stake in their communities, and take a strong personal interest in the long-term viability and success of the centres.
- Depending upon their primary purposes, centres may be accommodated by educational institutions, business organisations or their communities.
- Operators will need financial assistance with the setting up and equipment costs, and such capital costs may be met through sponsorship in return for naming rights.
- A project plan is essential to specify the steps required to bring the centres to fruition and contingency plans may be needed where there is volatility in the circumstances.
- In planning the centres, consideration should be given to such factors as accessibility, connectivity with other services, and security.
- Provision must be made for technical maintenance, repairs and support.
- The opening hours must suit the users’ lifestyles.
- The managers should not have dual interests and responsibilities.
- There should be business incentives for the managers.
- The lines of communication for those involved in the running of the centres should be simple and clear.
- The managers, staff and volunteers alike must be given initial and ongoing training to optimise service delivery and support community capacity-building.

- Everyone involved with the telecentres must be prepared to work flexibly, creatively, to deadlines and under severe time, resource and other constraints.
- New developments and successes must be publicised to generate interest and support.
- Sponsors and other stakeholders should be given regular progress reports.

The Maseru experience shows that telecentres can help dispell myths and fears about technology, support learners at the secondary and tertiary level, and provide access to distance education programmes and resources such as the African Digital Library (<http://AfricaEducation.org/adl/>). Such centres also have the potential to support business, local enterprise and the wider community.

The Maseru telecentre is attracting attention from the U.N. and other international agencies who believe that it can serve as a useful example for the establishment of other such centres elsewhere in Africa. It is hoped that one day the Maseru facility will win accolades for bringing benefits to learners, business people and ordinary citizens of the mountain kingdom of Lesotho.

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CHAPTER 13

GHANA'S COMMUNITY LEARNING CENTRES

*Jonnie Akakpo
Resident Advisor, LearnLink, Accra, Ghana*

*Mary Fontaine
LearnLink, Academy for Educational Development, Washington, DC*

LOCATION AND CONTEXT

Ghana lies at the intersection of the prime meridian and the equator in West Africa. Bordered by the Gulf of Guinea to the south, Burkina Faso to the north, Côte d'Ivoire to the west and Togo to the east, the country covers an area of 238,533 square kilometres and is home to some 20 million people. Half of these people earn their livelihoods from farming, fishing and mining, but business and commerce are increasingly important in the richer, more urbanised south. Ghana achieved independence nearly 50 years ago — the first black nation in sub-Saharan Africa to do so — and is a fledgling fragile yet peaceful democracy with an elected president and a social system marked by strong family and tribal ties. About 50% of the people are Christian, 25% follow indigenous beliefs and 20% are Muslim. The official language is English, and the literacy rate is around 65%.

Economically, Ghana ranks 89th in the world GNP ranking system with a GDP of US\$2,000, an inflation rate of about 25%, and an unemployment rate of 10% – 20%. Like other African nations, Ghana is urbanising at tremendous speed and this is placing enormous demand on the municipalities for increased services. One strategy adopted to address this demand is decentralisation, placing more responsibility for sustainable development in the hands of the municipal leaders. Building local capacity to assume these new responsibilities is an enormous task: by the end of 1997, there were already 18,000 newly elected local officials.

One project designed to support such capacity-building is the U.S. Partnership for Local Development initiative, implemented through LearnLink. LearnLink was established in 1996 and is funded by the Human Capacity Development Centre of the USAID (U.S. Agency for International Development) Global Bureau, African Bureau and other USAID bureaux, offices and missions. It is operated by the Academy for Educational

Development in Washington, DC. Known officially as the Global Communications and Learning Systems initiative, LearnLink is a five-year Indefinite Quantities Contract. It has helped design and implement more than 15 projects in as many countries, focusing on developing information and education and on applying information and communications technologies (ICTs) in support of development objectives in virtually every sector (for further information on LearnLink, see www.aed.org/learnlink).

LearnLink has established three pilot Community Learning Centres (CLCs) in Ghana. These are in Kumasi, Accra and Cape Coast. Kumasi, in the south-central part of the country, is the ancient capital of the Ashanti Kingdom. It is Ghana's second largest city, with a population of almost 1.5 million, and is a bustling commercial, transport and cultural centre and home to one of Africa's largest markets. Accra is Ghana's seaside capital, with many major organisations, educational institutions, industries and places of entertainment. It has a population of 3.5 million, and another 500,000 to 1 million people commute daily into the city to work. Cape Coast in the Central Region was traditionally a petty trading, cottage industry and fishing community. Today, many of its 800,000 residents are employed in government, education and tourism.

The LearnLink project goes beyond merely offering basic ICT services. It aims to set up the CLCs to be "learning laboratories," centres where elected officials, municipal managers, non-governmental organisations (NGOs), students, teachers, business people and others in the community can develop their knowledge and skills through Internet-based courses, Web access and sharing experiences face-to-face and online, building their capacity to handle the multitude of development issues they are currently facing.

HISTORY

The Partnership for Local Development project in Ghana was launched in 1997 with the local recruitment of a USAID-funded Resident Advisor to help implement the CLCs. With back-up from LearnLink, the Advisor's initial responsibilities were to identify suitable NGOs for the project, set up and equip the CLCs, select the Internet service providers, train the NGOs and CLC staff in managing and operating the centres, assess the communities' needs, design community outreach and develop programmes, services and plans for the CLCs' ongoing operations.

In 1997, computers were rare in Ghana, limited to the private sector and government agencies. People were generally mystified by, wary of, or indifferent to ICTs, and there was no outreach infrastructure. Much has changed over the last three years. Interest in the Internet has grown at an astronomical rate, and the CLCs are well on their way to becoming the fully functioning learning laboratories originally envisioned, to the point that demand is almost outstripping their capacity to provide.

AFFILIATIONS AND STRATEGIC ALLIANCES

Each CLC is managed and operated by a local NGO. The NGO responsible for the centre in Kumasi is the Centre for Development of People (CEDEP). Seeking to build human capacity through training programmes, CEDEP is one of the strongest NGOs working to promote sustainable development in Ghana, and it has a long history of community development work. The NGO running the centre in Accra is the Partners for the Internet in Education (PIE), a recently formed association of primary and secondary school teachers dedicated to widening the technological knowledge and skills of teachers and students in the Greater Accra Region. The third centre is run by the Central

Region Development Commission (CEDECOM) in Cape Coast, which spearheads private-sector development, focusing on small-scale enterprise, rural housing, poverty alleviation, environmental management and tourism development.

Entering the telecentre business was a dramatic departure from the traditional roles of these NGOs, but their leaders showed no hesitancy in taking on this challenge on behalf of their constituents, their communities and the country, and making them work. In local parlance, these leaders now “stand tall” in the community.

FUNCTIONS

Each local NGO, and therefore each CLC, has its own distinct vision and targets different groups of primary users: for CEDEP, it is community development agencies; PIE primarily targets primary and secondary students and teachers; CEDECOM targets small-, micro- and medium-sized entrepreneurs. However, in all of the CLCs, the priority need was to train people in computing skills. Typing is taught to aspiring secretaries in Ghana’s tertiary institutions, but is not a subject in the secondary curriculum. It is therefore very unusual to find people with even the most basic keyboarding skills. Thus, touch-typing as well as computer training were needed to develop proficiencies in the Microsoft suite of programs and other applications software that were provided for use in the community groups, schools and offices served by the CLCs.

As the CLCs’ reputation has spread, so people from all walks of life have come to use their services: university students and lecturers, health workers, legal practitioners, women’s groups, business people and district or municipal officials. Some come to research or browse the Internet for information about educational or employment opportunities. Small- and medium-sized enterprises come to find sources of goods and services. Entrepreneurs use the CLCs to seek information on market opportunities and price trends. School children come into the centres to link with their counterparts in schools across the globe, for example, in the UK and France through the Oxfam-sponsored On The Line project. Private companies, government agencies and NGOs contract with the CLCs to provide staff training in computers, and the Internet and educational institutions are beginning to use the CLCs for distance education. And some people — tomorrow’s clients — come simply to e-mail friends and loved ones, and out of sheer curiosity.

COSTS AND FUNDING

To receive the basic start-up, staffing and operational funding, the NGOs hosting the CLCs were required to sign a Memorandum of Understanding with USAID, agreeing to provide:

- accommodation (no specifications were laid down and each CLC established a different type and size of facility);
- computer workstations, shelving, bookcases and other furniture;
- air-conditioning, blinds, carpets, power outlets and other fittings; and
- telephone connection.



Once this was agreed, USAID provided each centre with:

- 4 – 10 computers loaded with Windows 95/98 plus equal numbers of surge protectors, two printers, one monochrome laser printer and an ink-jet colour printer;
- applications software: Mavis Beacon for typing, Microsoft Office Suite, Microsoft Project, Corel Draw and educational CD-ROMs;
- one year's salary for two staff;
- dial-up Internet installation and subscription for the centre's first year of operation; and
- funds to purchase stationery, cartridges and other supplies for the first year of operation.

USAID also provided the salary and onsite costs of the Resident Advisor.

The CLCs were expected to charge subsidised fees for their products, services and programmes, generate revenue to purchase additional equipment, and work towards self-sufficiency.

ACCOMMODATION

Each CLC is differently accommodated, but they all have managed to provide good workspaces for the users. These work areas are used both for Web browsing and computer training, which means that browsing has to be temporarily suspended during training sessions to avoid distracting the trainees. Each CLC also provides an office for its Manager and support staff.

In one centre, a large room has been partitioned to form two work areas, one for training/Web browsing via four networked computers and the other, with a single computer, for use by the Manager and for the occasional seminar or meeting. The second centre has two smallish rooms, one used for training/Web browsing via six networked computers, and the other, equipped with one computer, as the Manager's office. The third centre originally was made up of one room with six computers for training/Web browsing, and a second room, containing two networked computers, used for administration. This centre has recently managed to add another room for the office, enabling it to convert the former office into a training area and dedicate the third room to training/browsing, 12 hours a day.

All three CLCs are experiencing increasing demand for their services and will soon require additional space. Unfortunately, all of the centres are currently located on the upper floors of multistoried buildings, which presents access problems for physically challenged people wishing to use these services.

MANAGEMENT

Establishing and maintaining the CLCs has required management at the international, technical, institutional and local levels. USAID/LearnLink provided the resources and overall support for the project, and the liaison between these international aid agencies and the NGOs and CLCs was managed by the locally recruited Resident Advisor.

The Resident Advisor also co-ordinated the other three levels of management, carrying out the following duties:

- Technical management:
 - procuring and setting up equipment;
 - planning, installing and configuring networks;
 - connecting to the Internet;
 - recruiting technically competent staff; and
 - developing programmes, products, services, learning systems and operating manuals.
- Institutional management:
 - developing business plans;
 - coaching CLC staff in administrative procedures, reporting systems and report writing; and
 - designing and implementing a monitoring and evaluation system.
- Local management support (which is ongoing, provided mainly by the host NGOs):
 - assisting CLC clients in registering for programmes and services;
 - conducting client needs assessment, developing training materials and training clients;
 - organising seminars at secondary and tertiary institutions;
 - promoting the CLCs through radio announcements, partnerships with local media, and flyers, posters and banners;
 - day-to-day bookkeeping; and
 - preparing quarterly financial statements for USAID and monthly and quarterly reports for USAID and the Resident Advisor.

STAFFING

Each CLC has a woman as a Manager and a male “techie” as her assistant. This staffing pattern was intentional, designed to encourage females to feel comfortable visiting the centres. This has proved a wise strategy because more men than women use the CLCs and the CLCs have had to take steps to encourage more female patronage.

Each staff duo is responsible for the short- and long-term planning for, and management of, their centres. Two of the CLCs also have the services of other staff to assist Internet browsers and first-time users of e-mail.

Some of the real heroes and heroines in the CLCs have been the National Service Volunteers. Without the enthusiasm and expertise of these recent graduates who have offered their services without charge in the CLCs, the centres might never have attained their present status, stability and income levels. There have been mutual gains in this arrangement, because through this work these volunteers have gained new skills and new perspectives. One volunteer working at the Kumasi CLC comments, “My life has completely changed from an unknown to a known world!”

TRAINING MANAGERS, STAFF AND USERS

Much effort has gone into providing training and support for the CLC staff and the communities. It has always been the aim to involve as many staff from the host NGOs

as possible in the training programmes, and to ask unit heads to assign their staff to the CLCs on a rotational basis. Unfortunately, that has not always happened. Some of the unit heads have not been adequately informed about the benefits of training. Not all of the NGOs are equipped with computers, so the immediate benefits of the training have not been self-evident. And the already overworked staff have found it difficult to make time for their training. Responding to these challenges, the centres have developed self-tutoring materials that are now being translated into computer-based multimedia training courseware. Those who have received training are most appreciative. One grateful trainee says, “More grease to your elbows, but make sure you don’t soil your beautiful shirts!”

Upon advice from the donor, the NGOs and their CLCs were also trained in developing business plans and then required to prepare their own operational plans. This approach was found to be invaluable in helping those running the centres develop comprehensive and realistic working guides, estimates of costs and income, ways of measuring performance against standards, and realistic timelines for implementing programmes and services.

PUBLICITY

Each CLC devises its own particular approaches to publicising its products, programmes and services within its community. However, some common strategies can be identified. During the start-up phase, each CLC sent out introductory letters to its partners and potential clients announcing the new services. All of the centres organised public launches, which were presaged by announcements in the electronic and print media. The opening ceremonies were major events featuring music, drama and dance. At one of the openings, 150 people came to celebrate: academics, students, business people, local dignitaries, USAID mission officials, community leaders and a representative of the Asantehene or Ashanti King, who acted as chairperson for the great occasion. At another opening ceremony, the Queen Mother of Mampong Kronko — Nana Aboagyewaa Kente — cut the ceremonial tape to the CLC facility.

Each centre has developed a flyer describing its services to prospective clients. One centre has entered into a partnership with a local radio station which advertises its services on air in return for information and news items provided by the CLC. The three centres collaborate in publishing a quarterly newsletter, and two CLCs have developed Web sites to showcase their NGOs and their services.

“Open weeks” have been found to be a particularly powerful marketing tool. These are designed to introduce specially targeted groups, such as medical practitioners, women’s development organisations or merchants, to the potential of the CLCs and ICT generally. The centres are now planning radio talk shows to educate the wider community about the Internet and what it offers.

ACCESS

All three CLCs have flexible opening hours. Officially, two of the centres are open from 7:30 a.m. to 7:30 p.m., Mondays to Fridays, but in practice they remain open until the last client leaves, typically between 8:30 and 9:30 p.m. Currently, two of the centres also open on Saturdays and Sundays.

All three centres are located in well-secured places with security personnel regularly on duty.

TECHNOLOGY

The amount of equipment originally allocated to each centre depended on the needs, capacity and financial and human resourcefulness of the host NGO. On this basis, one CLC ended up with four Intel Celeron 366 MHz multimedia computers and a monochrome laser printer, colour ink-jet printer, CD-ROM writer and zip drive. The largest of the CLCs has 10 computers plus a monochrome laser printer and colour ink-jet printer.

All three CLCs have Ethernet networks with dial-up connectivity to an Internet service provider with a speed up to 33.6 Kbps. To improve on the slow and often interrupted Internet connections, all three centres are currently considering alternate connectivity arrangements, wireless radio links providing speeds of 64 Kbps at each node on the network. At the time of writing, negotiations were well advanced for this and so it should not be long before all of the CLCs are able to provide faster and more reliable Internet access via these links.

The centres have developed training manuals to help the users master the technology and have recently started converting these into multimedia format, incorporating video, audio and animation. These computer-based materials will make the training more interesting and offer the trainees the option of learning at their own time and pace. The centres are also building up collections of CD-ROMs on history, geography, anatomy and other topics in which clients express interest.

RESEARCH AND EVALUATION

LearnLink's involvement with Ghana's CLCs officially ended on June 30, 2000. During the last two months of the project, a series of evaluations and assessments were undertaken. The interim findings reveal the following critical lessons for creating, operating and sustaining an effective CLC:

- Make sure the CLC's mission, goals and targeted groups are agreed to by both the sponsor and host organisation.
- Tap the resources of the sponsor to determine what products and services the CLC might offer, but do not bind the CLCs by these suggestions.
- Ensure that the sponsor is aware of the specific technological infrastructure required to make the CLC function effectively.
- If a CLC is to be managed by a local NGO, train its leadership and staff in the fundamentals of business management, with an emphasis on managing information utilities.
- Ensure that there is a business plan for the CLC that is in accordance with the objectives agreed to by the sponsor and host NGO.
- Gather data about potential user requirements directly from the host NGO, local community and intended beneficiaries right from the outset, while recognising that those lacking experience of ICT must first be introduced to its potential before being consulted on how it might meet their needs.
- Ensure that the CLC's location presents no physical or psychological barriers to the users.



- Ensure that the CLC staff have the requisite skills to provide the training and the CLC Managers the necessary managerial training.
- Make sure that the Resident Advisor has the capacity to empower people and that he or she is appropriately trained and resourced for the job.
- Delegate responsibility and accountability for the initial management of the CLC to the Resident Advisor and heed his or her advice.
- Design specific and creative interventions to ensure gender equity in the use of the CLCs.
- Do not expect too much during the early phases of the CLC.
- Ensure that staff remuneration is sufficient to avoid losing competent, trained personnel to the increasingly active private sector.
- Monitor the following on an ongoing basis and with regard to local contexts and circumstances:
 - the appropriateness of the training topics/styles/approaches;
 - the effectiveness of the billing system;
 - the effectiveness of the outreach programmes;
 - the efficiency of the technology; and
 - the usage needs of clients, constituents and patrons.

CONCLUSIONS

Everyone is optimistic about the Ghanaian centres' futures. They are all developing new products and services for other NGOs in their communities, and Oxfam has recently contracted them to train high school students. USAID in Accra may launch six more CLCs in Ghana, managed along the lines of these three pilot centres.

One of the most impressive aspects of the Ghana CLC initiative has been the sheer determination of the host NGOs to be partners and drivers in the project. A second positive factor was the "local champion" — the Resident Advisor — helping the NGOs establish, manage and operate the centres. The donor's initiative in providing grant funding, equipment and other support was also critical because the three NGOs were seriously strapped for cash, especially at the start of the project before there was any other source of income.

In Ghana, as in all countries, rich or poor, the Information Age is increasingly accepted as a reality and there is rapidly growing need and demand for computer literacy. People from all walks of life are coming to accept the Internet as a source of information and tool for conducting business. Recent media hype about ICTs has caused large numbers of secondary school students and tertiary graduates to flock to the CLCs for computer and Internet training. The CLCs are also providing opportunities for ordinary people to satisfy their curiosity about the new technology, connect with their loved ones and join virtual communities, forming action groups that are based on common interest rather than geography. According to TechKnowLogia (May/June 2000; www.techknowlogia.org), using ICTs to create these learning communities may result in the telecentres becoming the watering holes of the 21st century.

The Ghanaian CLC staff see it as their moral responsibility to reduce the level of ICT ignorance in their communities and reach out to as many people as possible. They have

faced daunting challenges in terms of time, funding and resources, but these have never dimmed their eagerness to spread the word. The strategy of hiring female Managers at all three centres has helped to make them female-friendly, to demystify ICTs and to overcome female “technophobia.” As a result, a considerable and growing number of girls and women are now using the centres.

Setting up the CLCs was certainly no “walk in the park.” There were several early glitches in the relationship between the donor agency and the local NGOs. For example, the equipment initially procured for the CLCs was of poor quality, which led the people setting up the first CLC to wonder if this was not all one big fraud. At that time, Ghana was going through an energy crisis that slowed down commerce and business. As a consequence, having expended considerable funds setting up the CLCs, the host NGOs were uncertain about their ability to recoup their investment. Another great hurdle was the absence of skilled staff to manage the centres. The unreliable telecommunications system was, and still is, a threat to the smooth operation of the centres. At one CLC in particular, dialing into the Internet service provider is constantly difficult. Funding is sorely needed for all three centres to have dial-up connectivity to the Internet. All centres have five or more Ethernet networked computers with a single modem, which also slows down access time and causes concern to providers and users alike. And, as if this were not enough, the Internet installation and recurrent costs, plus time spent on the telephone, are quite prohibitive.

On the basis of the Ghana experience, our advice to others thinking of establishing such centres would be as follows:

- Only establish a telecentre where there is societal/organisational readiness to reform the social, economic or educational order, enter the Information Age, and change the traditional communication patterns and organisational cultures.
- Maximise the links between management, community groups, stakeholders and “powerbrokers.”
- Identify trusted organisations, “local champions” and “early adopters” who can serve as intermediaries and spread the word among local communities and potential partners.
- Ensure that there is some individual like the Resident Advisor or a support group to provide advice and support for establishing the centres and services.
- Unite with others in establishing co-operatives or strategic alliances to address such political issues as establishing the telecommunication infrastructure, achieving fair and healthy competition among telecom and other service providers, granting licences to Internet service providers, and generally achieving efficient, reliable and affordable services.
- Develop business plans for sustainability and monitor their implementation and impact.
- Carefully design outreach to local groups and individuals, and particularly women.
- Select a strategic and easily accessible location and ensure that the facility is accessible to both able and physically challenged persons.
- Seek professional advice on the design and layout of the workspaces, and designate rooms for training, Web browsing, meetings and self-study.
- Define a major part of the mission as making ICTs available to all in support of human capacity development.

- Acquire quality state-of-the-art technology, fast processors with better connectivity than single dial-up, and possibly wireless connectivity with high access speed at each node to minimise the cost when clients connect to the Internet, and network computers to provide multiple access points for the clients.
- Get the best technical advice possible from experts and by subscribing to ICT periodicals.
- Provide relevant programmes based on carefully conducted community needs assessments, but at the same time be proactive and anticipate needs.
- Incorporate traditional methods of communication into ICT applications.
- Design effective monitoring and evaluation instruments to track progress.
- Recruit high-calibre staff who are committed, competent and technically skilled in the relevant areas.
- Provide the staff with adequate remuneration, positive feedback and other incentives.
- Develop a systematic training programme to enhance capacity-building.
- Anticipate setbacks — things always take longer than planned!

Looking to the future, it seems likely that there will be a proliferation of “pseudo-learning centres” as the telecentre concept is cloned and otherwise taken over by commercial providers, sometimes for quite unscrupulous for-profit motives. Because they have been set up for all the wrong reasons, the programmes and services in such fly-by-night centres may be poor, and unsuspecting clients may be provided with poor tuition, half-truths or misleading information because the staff are poorly qualified and lacking in experience.

On the other hand, the growing demand will undoubtedly spur many honourable people to establish legitimate centres and help others upgrade their knowledge and skills through online and distance learning. This will result in growing competition for well-qualified ICT persons, and so there is the need, right now, to identify and train more specialists in this area. This should be a national priority but, sadly, some developing nations may not see it this way, so computer literacy rates may be as slow to develop as have been other forms of literacy. However, there is growing interest in acquiring ICT knowledge and skills, and if word processing and Internet usage can become second nature to the new generation, they will be well equipped to take advantage of opportunities for distance education, e-commerce and other development activities. The Ghana CLC experience has shown that telecentres can have a critical role in advancing the community and creating the technology culture to help this happen.





CHAPTER 14

TELELEARNING AND TELELEARNING CENTRES IN INDIA

*Santosh Panda and Sohanvir Chaudhary
Indira Gandhi National Open University, India*

INTRODUCTION

Comprising 26 states and six union territories, covering 3,287,590 square kilometres and having a population density of 304 per square kilometre, India is the world's second most populous nation and second largest democracy. Nearly 40% of its 1 billion people live below the poverty line, nearly 79% live in rural areas, and about 60% belong to disadvantaged groups: the scheduled castes, scheduled tribes, rural poor, urban poor, women in villages and small towns, and disabled. The Indian constitution recognises 18 major languages although in fact 1,652 dialects and languages are spoken. With a per capita GDP of US\$358 (1997/98), India's economy is predominantly agricultural. During the last decade, however, the economy has been opened up to world markets and deregulated.

India's literacy rate is 64%, but for females it is just a little over 40%. The National Literacy Mission's drives have been highly successful, but there are still 400 million people who are functionally illiterate. More than 190 million children in the 6- to 14-years age group are enrolled in the 23 million elementary schools, and a further 5.3 million school dropouts attend the 240,000 non-formal education centres. However, there are still 70 million children who miss out on their schooling. Compounding these social problems are low health standards. The infant mortality rate is 71 per 1,000 live births, the maternal mortality rate is 4 per 1,000 live births, and the protein energy malnutrition rate is 8%.

Most of those living in the rural and tribal areas are landless labourers, and in some states, migrant labourers or nomads. Rural development is a high national priority and central and state governments and non-governmental organisations (NGOs) are supporting many schemes that integrate education, training for employment or self-employment, health and family welfare, agriculture and allied activities, and women and child development. These interventions are achieving perceptible improvements in rural circumstances.

It is widely recognised by international agencies, central and state governments, and NGOs that information and communications technology (ICT) and telecentres could

have a key role in supporting educational and socio-economic development. However, while the “Scandinavian multipurpose telecentre” might seem ideally suited to the needs of a developing nation such as India, the country has so far opted mainly for the simpler model of “phone shops.” Thousands of these small agencies have been established in rural areas, some equipped with faxes and even computers, all providing services at a price. Even some village clubs now have Internet access. There have also been occasional experiments in teleconference- or computer-based rural education and training, and some states have strong networks of community volunteers and co-operatives providing voluntary community education and training. Some useful lessons may be learned from the Indian experience, but we have yet to come across a sustainable multipurpose community telecentre or network as those described elsewhere in this book.

TECHNOLOGY

Telephone services include basic telephony, leased lines, ISDN (a high-speed communications line), voice mail and data services. Private cellular phone services are available in all metropolitan areas. Telephone connections grew from 4 million in 1990 to 12.6 million in 1996 with an annual growth rate of 12.6% (Department of Telecommunications 1997). The current teledensity (number of main telephone lines per 100 inhabitants) is about 2.7. The aim is to raise this to 7 by 2000 and 15 by 2010. By 2002, it is estimated that 23.7 million telephone lines, 6 million pagers, 4 million cellular phones and 25,000 VSATs (very small aperture terminals) will be added nationally (Menon 1997).

The Government of India has recently decided to end the monopoly of the flagship Videsh Sanchar Nigam Limited (VSNL) for international long distance telephony and as an Internet service provider. There also used to be a government monopoly of in-country telephone communications, but now there are private telecom service providers in three states: Maharashtra, Madhya Pradesh and Andhra Pradesh. In 1998, about 400,000 telephone connections, including 10,000 public telephone connections, were implemented in the state of Andhra Pradesh alone. Across the nation, approximately 44% of the 6 million or so villages have access to telephony and 10% – 15% of all telephones are actually in rural areas (Vittal 2000).

The number of cable TV connections rose from zero in 1990 to an estimated 32 million by June 2000 (www.nasscom.org). Privatisation has boosted cable TV which has a potential for interactive service provision in rural areas. There will also be an increase in the use of KU band for educational, health and other government broadcasts.

Radio and TV coverage is 97.3% and 87.6%, respectively. There are about 63.2 million TV sets and 180 million transistors in the country (Chaudhary 1999) and about 43% of all TV sets are in the rural areas (Dave and Bhavsar 1999).

The Indira Gandhi National Open University (IGNOU), South Asia's largest distance education provider, is now the nodal agency for the sub-continent's first fully fledged educational TV channel, *Gyan Darshan* (Knowledge Network) on the national *Doordarshan* (Television) network, a channel to which it formerly only had limited access. In fact, IGNOU is the only university in the world entrusted with co-ordinating and operating a national channel devoted exclusively to education.

The computer market has grown substantially, from 1 million in 1995 to today's estimated 10 million (Mitra 1999) and the Internet is significantly influencing the

market. Internet access is developing fast, with 50% of users currently connected through VSNL (Adhikari 2000). As mentioned earlier, the VSNL monopoly on international long distance with FLAG (Fibre Link Around Globe) will end in 2000. Private providers, some offering services through VSNL, will have direct Internet service provider access to FLAG, which will substantially increase access to and use of the Internet, including in-country Web hosting (Zarabi 2000).

India graduates great talent in ICT — as evidenced by the many successful Indian expatriates in the Silicon Valley. The country has a large pool of software engineers and other technologically trained people and is making its mark in a software industry that is projected to earn about US\$6 billion in 2000.

EARLY VENTURES IN TELELEARNING AND TELETRAINING

India launched its first *Aryabhatta* satellite in 1975 and ever since that time has had the capacity to design, build and launch satellites for its own requirements. However, the first application of ICT for education and development — the one-year Satellite Instructional Television Experiment (SITE) which was also launched in 1975 to provide one-way television programmes for 2,330 villages in economically disadvantaged regions — used an American satellite. SITE aimed to improve primary education, provide teacher training, help improve agricultural, health and hygiene practices, and support family planning and national integration. Community viewing centres were created in villages and the villagers watched these programmes through direct reception system sets. Such communal access was found to be quite acceptable in the village culture. Every resource was fully mobilised to make this experiment a success, but the initial enthusiasm created by SITE was not maintained in subsequent INSAT (Indian National Satellite) projects, which were marred by technical and human problems.

One particularly serious criticism of SITE was that it only provided one-way communication, preventing the queries and doubts of the viewers from being resolved and their responses from being used to improve the programmes. In 1989, recognising the importance of interaction, the Indian Space Research Organisation (ISRO) determined to conduct some satellite-based one-way video, two-way audio experiments in support of education, mass literacy and human resource development. Running throughout the 1990s, these applications included distance education programmes ranging from engineering to maternal health, rural development programmes covering such topics as the role of women in afforestation, programmes for women and children, programmes supporting *Panchayati Raj* (local community self-government) and industrial training. One of the providers was IGNOU, which in 1995 conducted a 10-day telelearning/telecounselling experiment via its OPENET teleconferencing channel to its networked regional centres and study centres.

Research carried out in regard to these initiatives showed that teleconferencing could be an effective tool for distance learners, provided it was well planned and implemented. However, as Rao (1999) notes:

- Interaction was voice-only and, being via STD telephone line, the recurrent costs were prohibitive.
- The quality of audio was inconsistent.
- There were technical breakdowns.

- To avoid feedback, the volume of the TV had to be turned down at the receive sites any time the viewers wished to respond or raise queries.
- Because of the lack of visual cues, learners often had to hold onto the telephone for a long time before the studio-based resource persons realised they wished to speak.
- The learning centres were not necessarily accessible to many of the potential beneficiaries.

Two parallel developments in using ICT for community development and technology capacity-building are worthy of further discussion: the Jhabua Development Communication Project and the IGNOU Telelearning Centres and virtual campus initiative. Both of these may be seen as having implications for any use of ITC or telecentres for education and training, and particularly in the rural sector.

THE JHABUA DEVELOPMENT COMMUNICATION PROJECT

Jhabua is a tribal-dominated district of Madhya Pradesh with a population of 1.13 million and population density of 116.68 per square kilometres. Over 90% of the population lives in rural areas. The literacy rate is extremely low at 14.54%.

The aim of the Jhabua Development Communication Project (JDCP) has been to gain experience in satellite-based broadcast and interactive networks for education, training and development. The JDCP Interactive Training Programme (JDCP-ITP) uses one-way video, two-way audio teleconferencing via narrowcast. The JDCP-ITP system comprises a small makeshift studio and mobile uplink earth station based at the Space Applications Centre in Ahmedabad, direct reception systems installed in 150 villages, 12 satellite-based talk-back terminals, and a transponder on the INSAT satellite. Participation from the receive sites is made possible by VSAT terminals equipped with Demand Assigned Multiple Access (DAMA) (comprising a computer, modem and TV monitor). The anchor person or DAMA operator in Ahmedabad allocates audio channels to particular receive sites as they wish to join in. The DAMA system also allows data broadcasting to the receive sites.

At the start of this project, orientation and awareness-building programmes were organised for the various developmental functionaries and NGOs. Educational and training programmes have since been transmitted five days a week on agriculture, watershed management, health, *Panchayati Raj*, education, socio-economic and human resource development, and cultural issues. Various presentation formats are used to make the broadcasts lively and interesting and the programmes have been produced in accord with the culture and communication styles of the villagers.

It is now planned for JDCP-ITP to include more villages and to convert the entire system to digital with multimedia, personal computer-based technology and an Internet-based 64 Kbps channel for video.

Formative and summative research has played a central role in this project. Shah (1999) has found that the percentage of viewers is typically around 37% – 38% of the potential audience, but on occasions can fall to 8% – 10%. The viewers tend to be male and the more literate of the population. The frequency of use by high socio-economic status viewers is low. The main reasons given for people not viewing the TV programmes are lack of time, lack of desire to engage in such activity, and the distances being too great to the receive sites.

SERVE (1998) found that the village halls used as receive sites were not ideally suited to this purpose. Acoustics and viewing conditions left a lot to be desired and there was often a lot of external noise distracting the trainees. In some cases, the TV sets had been stolen or were not working, and there were occasional failures of computers, audio systems and power supplies. The viewers also experienced difficulty in understanding the "bookish" Hindi language used by the resource persons. However, the conclusions of this study were that, while there might not always be a great deal of actual skills transfer, at least such programmes could promote general awareness among the villagers of Jhabua district.

THE IGNOU TELELEARNING CENTRES

The Indira Gandhi National Open University was established in 1987 and is mandated by the Indian Parliament to promote, offer and maintain standards in distance education nationally. As well as being a major provider, it is also the apex body for quality and standards in India's nine state (open) and 62 dual-mode universities, a role it performs through a Distance Education Council. IGNOU operates 22 regional centres, 12 recognised regional centres and about 561 study centres that are managed locally by various organisations, institutions, agencies, societies, NGOs and community groups across the country. It has a yearly intake of about 200,000, with about 600,000 students on its rolls, including some students from rural, tribal and disadvantaged urban areas.

The university had gained considerable experience in teleconferencing, using the Internet and localising educational delivery, and serving learners through community-based centres, even before it introduced its virtual campus through a network of telelearning centres (TLCs) in 1999. IGNOU offers two programmes through these TLCs: a three-year Bachelor of Information Technology mounted in collaboration with the UK Edexcel Foundation, and the one-year Advanced Diploma in Information Technology, sponsored by the Government of India's Department of Electronics. Students can apply through IGNOU's headquarters in New Delhi or their nearest regional centre and, on admission, they are allocated to their nearest TLC. Almost all of the academic work for these programmes is done online.

Students pay 67,500 rupees (Rs) (US\$1,500) for their three years of study for the Bachelor of Information Technology, of which £95 goes to Edexcel and 40% goes to the TLC. The centres are expected to show a profit from the second year onwards. The course fee covers all course-related expenses including Web access, and the students can make further non-course use of the TLCs' phones, faxes and Internet facilities if they pay for these services.

There are currently 28 TLCs, including eight in Delhi. Until recently, all of them were owned and managed by commercial operators who either operated them exclusively for IGNOU or made the facilities available to other students and the general public in the non-IGNOU hours. Each centre is accommodated in accord with IGNOU-specifications and equipped with at least 50 Pentium computers, printers, scanners, digital camera kits, colour TVs, data projection equipment and antennas for teleconferencing. The students use the TLCs for live interactive satellite-based telelectures or teletutorials, pre-recorded videolectures, laboratory sessions, computer-based tutorials, online chat sessions with peers, faculty and external experts, and Web browsing. They can download their course material via the Internet, but as fallback, these are also available in CD-ROM.

The Bachelor's degree and Advanced Diploma in Information Technology each have a programme co-ordinator, a senior faculty member of IGNOU's School of Computer

Science who is responsible for creating the course units and the online chat counselling. Each co-ordinator has the assistance of a lecturer and full-time consultant. Many of the students are happy to work autonomously, but others find it invaluable to communicate with IGNOU staff, fellow students and others. Students regularly send e-mails to the IGNOU headquarters and there is always one consultant on duty to respond to these. Assignments are submitted online and returned by the same means with tutors' comments and grades. Weekly teleconferences are held for each programme and locally recruited counsellors provide further theoretical and hands-on sessions at the TLCs.

Great care is taken to ensure quality in these two prototype programmes. A Vice-Chancellor's task force, made up of two Pro Vice-Chancellors — the Director of Computing and the Director of Regional Services — monitors the programmes weekly. Every trimester, academic auditors from Edexcel visit IGNOU for a joint monitoring of all activities including the TLCs' operations. A joint review committee also meets each semester, once at IGNOU and once at Edexcel in the UK, to review the course content, methodology, staffing and infrastructure. As well, the IGNOU regional centres have a monitoring role, reporting on the TLC's performance to the Vice-Chancellors's task force. At each regional centre, there is also a consultant at the Assistant Regional Director level who is exclusively engaged in this task. On the last Friday of each month, all of the directors of regional centres involved in the Bachelor's degree and Advanced Diploma in Information Technology meet with the Pro Vice-Chancellors at IGNOU to take stock of the programmes and decide upon any corrective measures that may be needed.

The BIT programme has yet to complete its first three-year cycle, so there are no firm research findings on its ultimate outcomes. However, a number of operational difficulties and bureaucratic delays have been experienced. These "virtual campus programmes" operate within the established structure and culture of IGNOU and therefore inherit many of the problems of its everyday operations. E-mails and other queries from students are supposed to be responded to every day, but in fact there are too few staff at headquarters to handle this — only five of the proposed 35 personnel have been assigned to this task. Constant changes in the consultants also affect the smooth functioning of the programmes. Furthermore, while income is received from students each year, it is not always available for the TLCs when it is needed.

As mentioned earlier, the TLCs have been owned by private commercial organisations. Some of the private TLCs may be retained, but it has now been decided that, with the exception of a few reputable and reliable TLCs, IGNOU and its students will be far better served by bringing these centres under the control of the university and integrated with the IGNOU-owned regional centres rather than being in private hands. So far, 14 of the regional centres have been converted into TLCs and provided with the necessary computer labs for these virtual programmes. The Edexcel agreement is expected to be extended to all 22 regional centres, which will mean that all of the remaining centres will also need to be upgraded over the next year or so.

There are two important lessons in this for any future telecentres. First, privatising and granting autonomy to telecentres may make it difficult to ensure the quality control necessary for retaining governmental and other sponsorship and support for educational and training interventions. Second, online teaching and training entails far more than delivering pre-digested content by satellite, Internet, disk or CD-ROM. The levels of interaction and support needed, particularly by first-time learners or trainees, demand considerable staffing and resourcing, both at the providing sites and the receive sites.

OTHER RURAL ICT DEVELOPMENTS

The Commonwealth of Learning, with funding from the UK, has initiated an ICT-based literacy project in Bangladesh, India and Zambia. Launched in 1998 and due to end in 2001, this project includes the establishment of technology-based community learning centres to help literacy workers gain in-country experience and expertise and to provide training in reading, numeracy and applications of ICT. IGNOU is a partner in this programme. No evaluative findings were available at the time of writing.

The Madhya Pradesh Bhoj (Open) University in Bhopal, in collaboration with the Rajiv Gandhi Shiksha Mission (RGSM), has equipped 50 kiosks (telelearning centres) in 45 rural districts in Madhya Pradesh with Internet access and one-way audio/video for rural training via a 64 Kbps dedicated leased line. The plan is to increase the number of sites to 7,000 over the next three years. (Dikshit 2000). Here again, evaluative results are awaited.

The Internet has also come to 70 villages of Warana (Kolhapur and Sangli districts of Maharashtra state) where 25 co-operative societies have set up two hubs (costing US\$6 million), one at Warana Engineering College and the other at a sugar co-operative's administration building. This project is supported by a national informatics centre and the state government. Each village has a "facilitation booth" with wireless LAN for high-speed transmission of data for farmers on such essential issues as the best time for harvesting, product prices, accounting procedures, method for processing ration cards and permits, market rivals, new farming techniques, crop varieties and machinery, and pest management. This initiative has enhanced farm productivity, increased the profits of farmers and helped the area's co-operative societies achieve an annual turnover of US\$120 million (Prabhu 2000).

In the state of Andhra Pradesh, under the direct supervision of the state chief minister, a databank has been developed on all of the families in the villages in Medak district. Using this, a mobile van provides medicare services to families at a per capita cost of Rs100 (or about US\$2.00) per head per year. The success of this computerised healthcare system has now led the state government to embark on a US\$100 million *Sankshya Vahini* project, in collaboration with Carnegie Mellon University in the U.S., providing tele-education, telemedicine, e-governance and a citizen-government interface. This project will be implemented in the near future.

In the Dhar district of the state of Madhya Pradesh, farmers have access to the Internet in the vegetable market for product prices and access to land records. In another instance, in the Ganjam district of Orissa state, the tribal people have Internet access to various information sources, and officials use it for collecting and collating data for further research, with the support of Gram Vikas, an NGO located at Mohuda village.

"Village knowledge centres" have been established by the M.S. Swaminathan Research Foundation in five villages at a radius of 13 – 21 kilometres from Chennai in the state of Tamil Nadu. Designed to provide agriculture-related information, education and training via ICT, these centres are equipped with PCs with Internet access, printers, CD-ROM and TVs/VCRs. The centres are used to provide the villagers with essential information on such matters as grain prices, women's health and rural welfare schemes, announce grade 10 and 12 exam results, publicise events — even to provide updates on cricket matches! Due consideration is given to socio-economic contexts, gender and local culture in this work (Venkataraman 1999). The centres are provided rent-free by the villagers. Four of the centres are linked to the hub at Villianur village and all of the

centres are powered by solar hybrid systems, the first time these have been used in India. Each village has provided two to four volunteers with grade 10 education to help in the centres and, to date, nine volunteers (mostly female) have been trained in the basics of PCs, MS-Exchange, Word 97, I-LEAP in Tamil and system maintenance. Only 50% – 67% of the females in these villages are literate; 34% of the centres' users in Kizhur village and 50% of those in Embalam are women. About 60% of the usage is voice telephony, signifying significant dependence on voice as the main medium of transaction. M.S. Swaminathan Research Foundation currently funds this project. When the foundation withdraws, as it has announced it will do, the responsibility for sustainability will rest largely with the villagers.

An initiative has been taken by the International Telecommunications Union, UNESCO, the State Government of Gujarat and the lead agency, the Department of Telecommunications of Government of India, to establish multipurpose community-based telecentres in remote and isolated villages in the state of Gujarat. It is envisaged that these will be used for telemedicine, teletrading, tele-adminstration, telelearning and other services. A feasibility study (Gupta et al. 1997) and a Memorandum of Understanding were completed and a multipurpose community telecentre was established in Rajkot, run by a private individual, with land and building provided by the state government. However, as reported to the authors, this centre could not become sustainable and has now been closed.

CONCLUSIONS

Some may argue against rushing in to provide ICTs for rural development when many of the basic amenities are yet to be made available. However, the fact is that India needs the jet and the bullock cart, the global connections and the local delivery. The rural poor and the urban disadvantaged must be helped to become more empowered and self-reliant through education, to enjoy better health and lifestyles, and to be better informed about what is happening in the wider world.

It is recognised in many quarters that there is tremendous potential in the telecentre concept for integrated rural development, whether this manifests itself as multipurpose multimedia community telecentres with Internet access or simply as telephone-based call centres in villages. The crucial issues are how to make such centres financially viable and how to attune them to the needs of the nation and the local communities. As Vittal (2000) remarks, the present approach to rural telecommunication needs to shift from politics-focused and subsidy-driven to function-focused and economy-driven.



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CHAPTER 15

THE ACACIA PROGRAMME: DEVELOPING EVALUATION AND LEARNING SYSTEMS FOR AFRICAN TELECENTRES

Heather E. Hudson

*Director, Telecommunications Management and Policy Program,
McLaren School of Business, University of San Francisco*

“L’information est la clé de toutes les portes.”

Telecentre user in Timbuktu

BACKGROUND

The Acacia Programme on Communities and the Information Society in Africa is an initiative of the International Development Research Centre (IDRC), designed “to empower sub-Saharan African communities with the ability to apply information and communication technologies [for] their own social and economic development.” The idea for Acacia originated during the 1996 Information Society and Development Conference held in South Africa, the first international conference convened in a developing country to consider the potential of the new ICTs for development. Conference delegates noted a link between the information society and community development in Africa and suggested that “through links at the community level, a Global Information Community governed by people-centred development values could evolve within the more commercially oriented Global Information Society.” Meanwhile, African governments had also recognised the potential contribution of ICTs to African development, and had established the African Information Society Initiative (AISI).

Acacia was planned as the IDRC’s contribution to the AISI and the project was named after the Acacia tree which is found throughout sub-Saharan Africa. To develop and test models of community access, Acacia identified four core themes: policy, infrastructure, tools and technologies, and applications. Women and youth are high priority target groups. As a research initiative, Acacia was intended to bring together community-based learning and more traditional evaluation within a single interactive framework. Thus, Acacia includes a major evaluation and learning systems component. Its goal is to use systematic and participatory evaluation to learn about the applications and effects of

Acacia projects, and to share what is learned with local stakeholders and other Acacia projects, as well as African governments, non-governmental organisations (NGOs) and other development agencies and groups with an interest in this field. During 1998 – 99, the author served as Co-ordinator of Evaluation and Learning Systems for the Acacia Programme.

Telecentres are only one of Acacia's ICT (information and communications technology) initiatives. Others include such activities as school networks, environmental applications, connectivity for women's organisations, telemedicine pilot projects, and youth-focused ICT initiatives, as well as policy studies, primarily focused on the steps needed to make affordable access to ICTs widespread in Africa. However, the telecentres are perhaps the most visible of Acacia's initiatives, as they are designed specifically for community access. Acacia has established telecentres on its own in Uganda, in collaboration with the Universal Service Agency in South Africa and with the International Telecommunications Union (ITU) and UNESCO in Mali, Mozambique (a project described by Polly Gaster in Chapter 11) and Uganda. Jointly sponsored telecentres are also being implemented in Benin and Tanzania. These projects are referred to as "multipurpose community telecentres" (MCTs) and are equipped with a variety of facilities including pay telephones, fax, photocopiers and several computers equipped with basic software and connected to a telephone line through which e-mail and, in most cases, the Internet and Web can be accessed. The centres are intended to stimulate and support (1) local capacity for informed decision-making, particularly in the areas of health, education, economy, governance and general socio-economic development, and (2) the production of information to foster local development. In general, the projects are designed to develop sustainable models to meet the information and communication needs of the communities, with the assumption that these models will likely evolve during and following implementation.

This chapter focuses on the telecentres in Mali and Uganda where a participatory model of evaluation was introduced and replicated. More information on the evaluation methodology and models used by Acacia are described in Chapter 16 of this book ("Telecentre Evaluation: Issues and Strategies") by the same author.

The initial phases of the methodology were pilot tested and baseline data were collected for the telecentres in Timbuktu, Mali, in December 1998, and Nakaseke, Uganda, in March 1999. (Further information on the Nakaseke Multipurpose Community Telecentre is provided in Chapter 10 of this book.)

The methodology was adapted by researchers from the Makerere Institute for Social Research, who used similar techniques and instruments to conduct baseline studies in Buwama and Nabweru, Uganda, in June 1999.

EVALUATION METHODOLOGY

George Scharffenberger (formerly with the Pact Institute) explains how the evaluation methodology was designed to accommodate the needs for learning and evolution (Scharffenberger 1999a):

This "rolling design" approach (akin to what is referred to as "action research") requires a strong learning system, a flexible and nimble management style, and adaptive management systems. ... The learning system methodology used in Mali and Uganda integrates multiple data collection instruments that are sequentially implemented

to obtain relevant data from a wide range of perspectives. The process is a highly participatory and one in which local stakeholders refine the various instruments and play key roles in data collection, analysis and subsequent project decision-making. The interlocking design of the instruments, their sequencing and the manner in which they are implemented provide opportunities to verify and deepen understanding of information coming from previous instruments.

The instruments consisted of:

- *Community survey* — A questionnaire was designed to provide a quantitative overview of community information and communications needs, priorities and use patterns. It included sections on basic demographic data, access to ICTs, the information needs of the respondents (both to receive and transmit) and the current means of communicating and accessing information. The surveys were administered to stratified samples of several hundred people in six high-potential user groups.
- *Focus groups* — Six focus group discussions were held at each site, each representing a key user or stakeholder group related to the MCT pilot project's objectives. The methodology used focus group facilitation techniques, with emphasis on exploring the diversity of viewpoints rather than pushing towards a consensus. In addition to the facilitator and recorder, several people (including telecentre staff) observed and recorded pertinent statements using a table format to facilitate aggregation and reporting.
- *MCT management workshop* — A facilitated workshop allowed the telecentre's community management committee to review the information coming in from the other instruments and add their perspectives. The outputs from this were to be decisions on MCT operations and services and the development of key performance indicators for the MCT.
- *Log sheet* — Each MCT has established logs to track ongoing usage of the telecentre, including demographics of users (gender, age category, occupation) and services used.

This methodology is intended to serve as a learning system to provide project managers with ongoing input that they can use to guide the operations of the MCTs. Monthly analysis of the log sheets shows trends in usage patterns, and periodic repetitions of the survey and focus group discussion (it was proposed that these be carried out annually during the pilot phase) provide assessment of community satisfaction and concerns, as well as identifying developmental impacts of telecentre use.

A key feature of this methodology is its participatory approach. For example, local stakeholders participated in the questionnaire design, specifying topics of local importance, suggesting culturally acceptable questions for ascertaining age and income levels, and identifying potential user groups to be included in the sampling frame and focus groups. Telecentre staff and management committee members also participated in the data collection for the surveys and focus groups. This approach is unorthodox, as the conventional practice would be to use data collectors who have no connection to the project to avoid potential bias. However, it was felt that involving stakeholders would enable them to hear directly about the needs and aspirations for the telecentre from community members, and would help them to understand the approach of evaluation as learning. Furthermore, it would help address any cultural differences that might emerge between researchers and local people with their own means of understanding and communication. Also, as Scharffenberger (1999a) notes:

One of the greatest challenges for all monitoring and evaluation (M&E) systems is gaining the co-operation of front-line managers.... The MCT Learning Systems methodology attempts to address this shortcoming with a model that more effectively fosters not only co-operation but also a sense of ownership of the M&E system by the MCT staff, local management committee and other local stakeholders. This includes a concerted effort to provide an understanding of the data system, of the data being collected and its ultimate use and, more importantly, opportunities to help decide what data is collected and how. The MCT system then goes one step further by giving local stakeholders key roles in data collection and analysis and supports the direct application of M&E results to local project decision-making. The goal is to provide local managers with an understanding of the direct usefulness and importance of M&E while fostering a deep sense that the process and data are owned by the local community.

To avoid the dangers of biased outcomes inherent in participatory research, it is important that experienced researchers oversee the design of the studies and train the local interviewers. For example, data gatherers need to understand the idea of a sample, so that they do not simply interview their friends or ignore people they don't know or those whose views they think will be similar to what they have already heard. They must also learn how to follow the interview protocol, avoid the use of leading questions, and record responses accurately. The Acacia evaluations demonstrated that these skills can be readily taught, and that local people cannot only collect data reliably but also learn from the evaluation about the information needs and perceptions of the community.

The baseline evaluation itself raised awareness of the telecentre in the community. In fact, the surveys and focus groups actually served as a form of market research in identifying community information needs, training needs, preferred hours of operation, and willingness to pay for services. As Scharffenberger (1999a) observed, "To a considerable degree, the success and sustainability of the MCTs will be determined by the ability of their management to gauge the evolving information/communication needs of the community and to adroitly adapt MCT services in consequence. The mastery of what are essentially market research skills (sampling and survey skills, interview techniques, focus group facilitation skills, and organizational capacity self-assessment) was one of the baseline data collection exercises' most significant outcomes."

It was hoped that this participatory approach would create an understanding of the importance of ongoing assessment as a means of improving the projects and increasing the likelihood of long-term sustainability. In fact, it appears that this appreciation of evaluation as learning has taken hold among the projects' managers. At an evaluation workshop sponsored by Acacia in December 1999, the managers of the MCT projects in Mali, Uganda and Mozambique brought summaries of their log data, and each noted that they had found the information useful in assessing the reach of their services. The manager responsible for Timbuktu said that he had identified the most frequent users of the telecentres and sought them out to get feedback on what other services they might need and how to get others involved. The UNESCO project manager in Uganda observed that fewer women were using the telecentre than anticipated, and that he was working on strategies to increase female participation. The workshop participants also exchanged experiences on strategies that had worked at each site, and agreed to share data on an ongoing basis. The following section presents highlights of the Mali and Ugandan evaluations.

THE MALI AND UGANDA EVALUATIONS

Timbuktu, Mali

Landlocked Mali is the largest country in West Africa and among the world's poorest countries, with 65% of its land area desert or semi-desert. Economic activity is largely confined to the riverine area irrigated by the Niger. About 10% of the population is nomadic and 80% of the labour force is engaged in farming and fishing. Industrial activity is concentrated on processing farm commodities. The country, dependent on foreign aid, is vulnerable to fluctuations in world prices for its main export, cotton. Mali may be a poor country, but it has a rich heritage with more archaeological sites than any other African country except Egypt.

The fabled city of Timbuktu was once a trading crossroads and the world centre of Islamic learning and culture. Now much smaller and no longer on the shores of the Niger River, which has changed its course, Timbuktu remains an important regional trading centre of about 20,000 people on the edge of the Sahara, some 690 kilometres northeast of Bamako, the capital of Mali.

SOTELMA, the Malian telecommunications operator, provides service to Timbuktu via satellite, leasing capacity on Intelsat. SOTELMA is a partner in the Timbuktu telecentre project, and has provided three hours per day of free Internet access during the pilot project phase.

The telecentre was initially set up in a room in the hospital compound because of the availability of power and telephone lines. That location was not central, however, and the telecentre had since been moved to space in the main town square (la Place de l'Indépendance) next to City Hall (la Mairie). In fact, the Mayor is an avid booster of the telecentre, and has introduced a US\$10 departure tax for all air passengers leaving Timbuktu to help support the telecentre.

For the baseline study, questionnaires were administered to 212 respondents, interviews were conducted with the leaders of 12 organisations, and six focus groups were held with residents expected to have high potential as MCT users: high school teachers, tourism operators, leaders of women's groups, artisans, medical professionals and youths.

Although Timbuktu is the most physically isolated of all the telecentres reported on here, the people were less isolated than might be expected in terms of their communication use. Fully 25% of those interviewed used the telephone at least once a week, while merchants and those in the tourism industry made frequent use of phone and fax. About 70% listened to the radio at least once per week, and 58% watched television (also transmitted by satellite and then rebroadcast locally) regularly. However, there was considerable dissatisfaction with communication facilities and services, with respondents citing unavailability, high cost and unreliability of access to information.

Communications use differs considerably among the various subgroups. Middle-aged men, especially civil servants and businessmen, used telecommunications and mass media the most, while women and younger, older and poorer groups were less likely to use these facilities. Women in public administration also stated that they were much less likely to have access to a telephone or fax at work than their male counterparts.

Information priorities among adults include education, professional development, religion and health; priorities for teenagers include health, religion and education as well as entertainment, news and sports. Timbuktu is still considered a major Muslim religious centre, and has several famous mosques that are more than 500 years old. Despite the reputation of Timbuktu as a conservative religious community, few people expressed concern that increased access to external information would be culturally harmful.

In general, the community was enthusiastic about the telecentre, expecting that it would reduce the cost of communications, increase access to professional information, and provide opportunities for the community of Timbuktu to make itself known to the outside world and create links with external partners and markets (Scharffenberger 1999b). In fact, early indications were that the telecentre was already beginning to fulfil these expectations. According to logs for a three-month period in 1999, the top three activities at the telecentre were computer use, e-mail and Internet access, and training in computer skills. The three largest user groups were students, staff of NGOs and medical staff from the hospital. About 35% of the telecentre users were women.

Given its original location at the hospital, health workers were identified as one of the target user groups. They clearly recognised the need for information, and most learned quickly how to use the facilities. A physician interviewed in the baseline study commented, "Information is the fuel of medicine. Here we have none. Year by year, we are falling behind." By the time the telecentre was moved to the town square, he was using e-mail and the Internet regularly to get medical information, and the medical staff had requested that at least one computer with Internet connection remain at the hospital. Other early adopters included a tour guide who had used e-mail to arrange a trip in the desert on camelback for visitors. School teachers were looking up materials for use in their classes; one of the teachers had noted that the schoolbooks were few and so old that he had no map of post-colonial Africa. The value of the telecentre was summarised by a woman who wrote in the log book: "L'information est la clé de toutes les portes" (Information is the key to all doors). This could well be the motto of the entire Acacia initiative!

Nakaseke, Uganda

The Pact Institute's methodology was also used for the baseline study of the telecentre in Nakaseke, a rural community about 60 kilometres from the Ugandan capital, Kampala. The Republic of Uganda, with a population of almost 20 million, straddles the equator in East Africa. The Ugandan economy was devastated by the Idi Amin regime of the 1970s, the subsequent civil war, and the country's involvement in the civil unrest of the 1980s and 1990s in neighbouring Zaire. Uganda is now making a comeback, with strong recent economic growth. The country is overwhelmingly agricultural, with small farmers constituting over 80% of the workforce.

Nakaseke was chosen by the Ugandan government for this pilot project because its people and its infrastructure had suffered greatly during the recent civil war. The main economic activity in the area is subsistence agriculture. There is a hospital in the town and a teachers' college nearby. Nakaseke is relatively close to Kampala, but poor transportation is a major obstacle to travel and communication. It is 12 kilometres along a dirt road from the main highway, and there is no regular public transportation to the nearest market town, from which minibuses run to Kampala.

As in Timbuktu, the telecentre staff trained a "core user group" early on, consisting

mostly of young adults and school leavers. They, in turn, were to train others and to spread the word about the telecentre. They also assisted with the baseline evaluation. Also as in Timbuktu, the Pact consultant trained core users and staff of the telecentre to administer a questionnaire for potential users, conducted focus groups and organisational leader surveys, assisted the MCT project management to identify management and administrative issues, and helped the MCT staff to set up monitoring systems, including user logs and equipment maintenance and operations logs to track telecentre facility and service use. The Pact consultant also introduced the concept of a learning system and trained MCT staff and other stakeholders using participatory, community-based techniques.

In Nakaseke, the primary forms of communication were sending and receiving letters and listening to the radio. Those with more education tended to send and receive letters more frequently. The main purpose of communication was for social or family matters. More than 50% of the teachers, business people, civil servants and health and development workers reported sending information to Kampala at least quarterly. Letters were most commonly used, although messengers and personal travel were also cited. Only 4% reported using a telephone (an action that would have required travelling over the dirt road to the main highway and then to the nearest town).

Since most of the population (including women and young people) are farmers, their highest priority needs included information on markets, prices and new market opportunities; information on how to obtain inputs such as good quality seeds and breeding stock; and information on sources of capital. Small business proprietors said that they needed information on record-keeping. They also expressed interest in the computing and telecommunications facilities at the telecentre, but said that the businesses they dealt with did not have access to such facilities. The staff of the local hospital stated that they sometimes used taxis to send messages, which was expensive and not fast enough in emergencies. They also wanted continuing education and information on innovations in medicine, and they expressed interest in using the telephone, photocopier, and e-mail and Internet.

According to logs from a three-month period in 1999, the top three services used were access to videos, photocopying and access to periodicals. The top three occupational groups using the telecentre were students, farmers and health workers from the nearby hospital. Unlike for the other telecentres in this study, printed materials are a major component of the resources at the Nakaseke telecentre. One of the staff members is a librarian, and the centre has a collection of children's books, high school textbooks and development materials, and videos provided by The British Council. It also subscribes to several newspapers and magazines. High school students come to the telecentre to study, as most do not have textbooks of their own. Literate adults come to read the periodicals, and children come to watch videos. About 22% of the telecentre users during that three-month period were women.

Buwama and Nabweru, Uganda

The same basic evaluation methodology was used to conduct baseline surveys at two other Acacia-sponsored telecentres in Uganda, at Nabweru, a periurban district about 6 kilometres from central Kampala, and at Buwama, an agricultural and trading centre about 60 kilometres from Kampala. However, responsibility for these studies was entrusted to Makerere University's Institute for Social Research, so that local researchers would take over responsibility for the evaluation of these projects, as well as for the next phases at Nakaseke.

The researchers used the same participatory approach, seeking consensus about the survey from community leaders and major stakeholders, and recruiting and training local people as well as telecentre staff to conduct the interviews. At each site, 500 respondents were randomly selected and interviewed (25 respondents from each of 20 villages selected from five nearby parishes). Interviews were also conducted with representatives of nine community organisations at each telecentre site, and eight focus groups were conducted with members of potential user groups at each telecentre site.

The Nabweru sub-county has a population of about 53,000 and is easily accessible to central Kampala. It is one of the fastest growing districts in Uganda. Trade, particularly retail, is the major economic activity; a significant number of adults are also salaried employees in Kampala. The telecentre is located in a building that also houses local government officials, and it is adjacent to a police station. The Buwama sub-county is larger and poorer than Nabweru, with a total population of about 350,000 and a literacy rate of only about 30%. Major economic activities are crop farming, particularly coffee and horticulture, and fishing and fishmongering. Subsistence agriculture is also prevalent. However, the town is situated on a main highway and has several coffee merchants and retail traders, as well as a post office and other government facilities. The telecentre is located in a building shared with an NGO and near local government offices.

In both communities, whose populations are young, more than 85% of the potential telecentre users were found to be under 45 years of age. Only those with at least primary education were able to read and write English; a higher percentage had completed primary school in periurban Nabweru than in rural Buwama. Both communities relied heavily on sending letters to communicate outside the community. Residents in Nabweru also used the telephone (public telephones were available), while people in Buwama depended on messages sent with travellers or commuter taxis (Kayabwe and Kibombo 1999).

As in the other locations, the survey itself served to inform the residents about the existence and services of the telecentre while giving the telecentre staff and interviewers a greater understanding of community information needs and expectations for the telecentre. At both sites, the business community was interested in information on prices, while women wanted information on healthcare and credit schemes, and youth were seeking information on sports, entertainment, and education and job opportunities.

LESSONS LEARNED AND THE NEXT STEPS

The goals of Acacia's evaluation process are to provide useful feedback to project participants and to test Acacia's premise that access to ICTs will empower communities to take effective control over their own development. Evaluation and learning systems in Acacia are themselves subject to modification based on lessons learned in the pilot phase. It is intended that the evaluation process will be an ongoing activity of the telecentres, and that similar instruments will be used so that each telecentre can monitor its use and impact over time, and comparisons can be made across African telecentres. As noted above, a participatory model is key to this approach, as is simple ongoing record-keeping at each site. In addition, an e-mail newsgroup has been established for project managers and Acacia staff, which enables the projects to exchange data as well as discuss problems encountered and lessons learned.

The same methodology for the baseline surveys is to be used for the MCTs in Benin and Tanzania, with the project manager from Mali providing training and guidance in Benin

and the researchers from Makerere University assisting in Tanzania. It is intended that the baseline survey will be replicated at each MCT site from 12 to 18 months after the start of telecentre operations. Once again, MCT staff and other stakeholders are to be involved in the data collection, and results are to be fed back to them and to the community. In a subsequent application of the learning System model, Pact has experimented with the use of 3COM Palm Pilot computers (personal digital assistants) to replace paper questionnaires. The advantage of this method is that the data can be immediately uploaded to Access on a personal computer at the telecentre and made available for analysis by local stakeholders during the management workshop (Scharffenberger 1999a). The Mozambique project, described by Polly Gaster in Chapter 11, used a somewhat different methodology for its baseline survey, which predated the others and also served as a needs assessment. However, its research included demographic and economic data as well as information on user needs. Follow-up surveys are planned for that project, conducted with the aid of researchers from the University Eduardo Mondlane in Maputo where the project management is based.

To help ensure continuity, the Acacia Programme has also hired evaluation research associates, who are based at IDRC's regional offices in Dakar, Nairobi and Johannesburg. They will assist with implementation of the next steps of the evaluation and with the sharing and dissemination of findings. To build capacity in ICT evaluation research, Acacia will continue to contract with African universities and research institutes to conduct field studies.

While the approach to the evaluation was made as participatory as possible in the planning and data collection phases, it appears that there was perhaps not sufficient attention paid to giving the stakeholders back the results after the data analysis. The analysis was completed after the researchers left the community, and the reports were sent to the project managers. However, it may be necessary to develop a more interactive process whereby the researchers return to the community to explain and discuss the results of the research and its implications. It is hoped that with the involvement of in-country researchers and the new Acacia research associates, an approach that will integrate this step into the learning system can be developed. Finally, there is also a need to involve the National Acacia Advisory Committee members in the evaluation process. These bodies and their counterparts in other partner countries need to be briefed on the outcomes of the baseline studies and to contribute their views on issues that should be addressed in the next stages of the evaluation.

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CHAPTER 16

TELECENTRE EVALUATION: ISSUES AND STRATEGIES

Heather E. Hudson

*Director, Telecommunications Management and Policy Program,
McLaren School of Business, University of San Francisco*

INTRODUCTION

Telecentres are intended to meet the evolving information, communication and learning needs of their communities. It is therefore important to make a systematic effort to monitor the costs and usage patterns and to measure the impact of telecentre usage. As Schaffenberger (1999a) observes, the need for monitoring and evaluating telecentre efforts has been raised in multiple conferences and meetings, but unfortunately the rhetoric has not always been matched with the necessary energies and resources. Budget allocations for monitoring and evaluation are often modest or non-existent, and all too often those managing the projects end up reporting that setting up the centres consumed all of the available time and money. This chapter explains why evaluation is important and proposes frameworks and methods for designing and carrying out evaluation of telecentre initiatives.

THE PURPOSES OF EVALUATION

Evaluation may serve several purposes. *Formative* evaluation relates to process. It can provide feedback on individual telecentres (for example, to identify strengths and weaknesses in an inaugural centre and to provide guidance for a development agency for its next telecentre installations) and on multiple sites, pointing out how well these are working, what changes or improvements should be made and what was learned that could be applied in other similar projects. This information can also be useful to other agencies supporting telecentre projects.

Summative evaluation relates to outcome and impact. For example, did the project achieve its goals and what was learned about the contributions of telecentres and telecommunications to social and economic development? These are usually the most important questions for funding agencies concerned about whether their investments have made a difference, and for decision-makers responsible for budgeting information technology services or establishing universal access policies.

These purposes are related in that the feedback or process information may help to improve projects so that they are more likely to accomplish their goals. Furthermore, some of the data collected about who is using telecentres and for what purposes can be useful both as feedback to the project and for tracing the impacts of projects, as discussed below.

THE ROLE OF INFORMATION IN DEVELOPMENT

Information and the development process

In designing the evaluation of telecentre projects, it is necessary to consider the role of information in the development process. Access to information is critical to development; information and communications technologies (ICTs) are not simply a connection between people, but a link in the chain of the development process itself. There is considerable evidence that access to information through ICTs can facilitate many socio-economic development activities, including agriculture, fisheries, commerce, tourism, shipping, education, healthcare and social services.

In general, the ability to access and share information can contribute to the development process by improving effectiveness, equity and efficiency. *Effectiveness* refers to the quality of services, such as health and education. For example, communication between a village health aide and a doctor may improve the quality of healthcare in the village, and access to interactive training materials for teachers may improve the quality of instruction in the classroom. *Equity* refers to the distribution of development benefits throughout the society and is the key reason that many development agencies are helping to establish telecentres as a means of providing rural and disadvantaged populations with affordable access to information services. *Efficiency* typically refers to the ratio between output and cost. For example, a local merchant who can use a telecentre to order goods can reduce delays in supplying local customers and increase his revenues, and a farmer who can find out how to rid a pest attacking his crops can improve the output from his land. Improved “reach” is another benefit for businesses — for example, potters in Africa, coppersmiths in Nepal and Inuit soapstone carvers and muskox wool weavers in the Arctic are all now reaching global markets via the Internet.

However, none of these benefits occurs in isolation. Those who need to access or share information must have the skills to do so or access to a resource person to help them. Other factors may also have to be in place if people are to benefit from the information, such as access to credit for inventory or spare parts, a transportation system to get goods to market, or a curriculum that can be adapted to new teaching techniques and information sources. Thus, in order to learn how telecentres may contribute to development, not only must we find out whether and how they provide access to tools to create, access and share information, but we must understand what information is needed in the communities in which they’re located, and what other factors may influence how the related activities may affect development from economic, social, cultural and/or political perspectives.

The chain of inference

Many of the developmental goals proposed for telecentres imply causality between their use and specified outcomes. This chain of inference must be made explicit if any causal connection is indeed to be traced between provision of the telecentre and development.

Such a chain of inference may be complex, for telecentres are typically intended to serve a variety of community needs, which may not be as clearly defined as in projects designed for particular sectors or target groups. For telecentres to have an impact on development, at least the following are required:

- Community access:
 - The equipment must be conveniently located.
 - The telecentre must be open at hours when people want to use it.
 - The services must be affordable to the target groups.
- Awareness:
 - The community members must be aware of the centre and the services it offers.
- Skills:
 - The community members must be able to use the equipment or to get assistance in doing so.
- Lack of barriers:
 - There must be no constraints that would unduly hinder people from using the centre (e.g., lack of jobs or entrepreneurial activities; cultural norms that affect certain groups such as women; lack of transport to reach new markets).

Some benefits may accrue directly to individuals using the telecentre, such as being able to help in an emergency by contacting a doctor, or saving time by using telecommunications to arrange transport logistics or to eliminate the need to travel to the city. Other benefits may require more complex types of information-seeking.

Two concepts from diffusion theory of innovations and the impact of communications may be relevant in analysing ICT users and the potential benefits of ICT use:

- *Two-step (or multi-step) flow model* — The user of the innovation may not be the real beneficiary. In the case of telecentres, for example, the user may be the agricultural extension agent, the health worker and the social worker, but the beneficiaries are the farmers, women and children, and disadvantaged groups.
- *Early adopter* — Some people may be more likely to use the innovation sooner than others. With telecentres, for example, that might be the case for people with more education and those with clearly defined information needs, such as teachers, community leaders, artisans who need to find markets, and merchants who need to contact suppliers.

Users and beneficiaries

In attempting to identify and measure the benefits of ICT projects, it is important to consider users as individuals and as members of groups (for example, family, work or professional groups, cultural or religious organisations, political organisations, and so on). Their perceived role as individuals or members of a group may influence their needs for information, the people with whom they communicate, and the sources they contact for information. It may also be important to consider how the demographic characteristics of the users — such as their gender, ethnicity, education level, income level and geographical location — may affect their information needs. To measure the benefits, it will also be important to learn about the purposes for which people use the telecentre.

Most *individuals* are only likely to use ICTs for:

- Emergencies:
 - This application does not depend on education, literacy or any sophistication. However, a decision on where to seek help may depend on those factors.
- Personal needs:
 - To stay in touch with family members, including students away at school, relatives who have gone elsewhere to work, members of extended families living in other communities.
- Entertainment:
 - To socialise with friends, play video games, watch videos, find entertaining Web sites.

The more common *group* applications are:

- Businesses and enterprises:
 - To find information on markets and prices and outlets for products; to arrange transport of products to market; to order supplies and spare parts; to manage accounts; to seek solutions to business problems.
- Government services:
 - To establish links with headquarters, administration, planners.
- Sector-specific applications, such as:
 - Agriculture: To access extension services and databases; to obtain training; to enrol in distance education; to find market information.
 - Education: To access information for class preparation; to help with assignments and research projects.
 - Tourism: To plan itineraries; to make reservations; to enable tourists to keep in touch with families or work.
 - Healthcare: To conduct consultations; to facilitate administration; to access continuing education and training for staff; to conduct public education.
 - Non-governmental organisations (NGOs): To carry out organisational and community development; to facilitate administration; to offer training; to arrange logistics; to gain access to expertise.

Short-term versus long-term impact

One of the dangers in the recent enthusiasm about the role of ICTs in development is unrealistic expectations of significant short-term impact among donors and policy-makers. There may be some dramatic examples of the value of providing access to information — for example, farmers getting better prices for produce, artisans finding new markets, health workers receiving assistance and saving lives. However, much of the impact is likely to take longer and be much more indirect. Better access to more up-to-date information about planting methods may eventually result in better yields and thus more income for farmers, and schools with access to the Internet may produce more graduates prepared to continue with their education or to qualify for jobs. But these effects take time!

While planning evaluation that can capture these longer-term benefits, researchers should look for evidence of telecentre usage that could lead to longer-term impact, such

as women who have learned new skills, NGOs that have been able to obtain relevant information, and entrepreneurs who have obtained information about new markets. These are more likely to be the kinds of changes that can be documented in the first year or two of a centre's operation. Evaluators should be able to document these changes and identify the impacts that could result over time (e.g., new jobs or more trade) and the barriers that could impede longer-term impacts (e.g., lack of funds to continue the project, lack of credit to buy recommended fertilisers or pesticides, and difficulties in employing newly trained workers).

PLANNING THE EVALUATION

Formative evaluation: process and feedback

Each project should build in mechanisms to gauge how well the project is progressing and to provide feedback to the field staff and stakeholders. Specifics will vary with the type of telecentre, but are likely to include much of the following information:

- Facilities:
 - Is the equipment operating reliably?
 - Are the spare parts and technical assistance available when needed?
 - Are the telecommunications links sufficiently reliable?
 - Are there any unforeseen technical problems?
- Staff skills and performance:
 - What skills are needed to operate the telecentre (technical, managerial, information seeking, community outreach, etc.)?
 - Do the project staff have the necessary skills?
 - Has training been provided? Was it useful? Is additional training needed?
 - Are the project staff performing satisfactorily?
- Users:
 - Are the target groups (e.g., women, youth, teachers or entrepreneurs) using the facilities as expected?
 - Have the target groups suggested any changes in training provision, hours of operation, or the roles of project staff that would facilitate usage?
 - Are those other groups who were not targeted but who are using the facilities?
- Applications:
 - Are the facilities being used as expected? If not, what unforeseen circumstances may be hindering usage (e.g., poor or unavailable telephone service, equipment problems)?
 - Are the users trying applications that were not expected? If so, what are they?
- Usage trends:
 - What trends or changes can be observed in how the facilities are used, and in the volume and type of users? For example, are the number of users or frequency of usage increasing? Is there growth or change in the composition of users? Are there significant numbers of users who tried the facilities once but did not return?

Such information — which can be collected through logs, automated telephone or computer records, and interviews with staff and a sample of users is a useful means of making mid-course modifications and sharing experiences with similar projects. For example, in South Africa, telecentre managers have been identified as needing more business training; and in Mali and Uganda, improving the attitude of staff towards newcomers to the telecentres has been identified as important.

Summative evaluation: What difference did it make?

As noted above, the other important function of evaluation is to determine the impacts or effects of the project — that is, to ask “What difference did it make?” One way to approach summative evaluation is to determine to what extent the project achieved its goals. This approach assumes that the project started with explicit goals, or goals that can be easily made explicit from the project plan, and that the goals can be explicated as concrete targets that can be measured or tracked. Identifying goals is further discussed below.

Another way of approaching summative evaluation is to consider who benefited, directly or indirectly, from this access to information or the means to create and share it. If specific target groups have been identified, such as women, young people, local NGOs, entrepreneurs and artisans, answers can be sought to such questions as: How have each of these groups benefited? What might be the cumulative effects of such benefits on the wider community?

Evaluation as learning

Evaluation should be presented as a way of learning about the project’s strengths, the role of the telecentre in the community’s development, and the changes that may be needed. It is most important that it not be perceived as a judgemental exercise by the participants, but as an opportunity:

- to provide feedback to project staff on what is working well and what needs to be changed or improved;
- to plan for the sustainability of the telecentre; and
- to identify successful strategies and lessons that could be shared with other telecentres or networks, and other telecentre projects supported or operated by other organisations.

Evaluation may appear threatening to field staff who may resent someone looking over their shoulders or fear that they are being judged. One way of reducing such fears is to suggest to the staff that what they have learned would be useful to others starting a similar project, asking them for example, “What problems did you face and how have you solved them or tried to solve them?” and “What advice would you have for someone else starting a telecentre like yours?”

Another useful strategy is to involve the telecentre staff in identifying what information would be useful to them and then, rather than relying on outside researchers, training these staff and the user groups to be interviewers and data collectors. In this way, the participants themselves hear from the community and collect information on how many people are using the telecentre, for what purposes and what their views are on the services. The danger in this approach is that the data collection may be biased if the

participants “tune out” any negative feedback. However, if they approach the data collection as a learning process, and if they are trained in asking questions consistently and coding the responses accurately, the evaluation will be much more valuable to them. For example, in the Acacia baseline studies of telecentres in Mali and Uganda, telecentre staff were trained in interviewing and sat in on focus groups, hearing directly from community members about their information needs and perceptions of the telecentre. Similarly, any ongoing monitoring of activity for telecentres (such as usage logs) should be designed in consultation with the staff, showing them how the information collected can be useful for them in monitoring trends in usage and understanding the users’ needs.

Identifying objectives

To plan the evaluation, it is important that the objectives of the telecentre project be understood by all participants. This may sound straightforward enough, but the various stakeholders such as donors, partners, communities and telecentre staff may have quite different objectives from each other. Also, if objectives are too vague or general, such as “empowering local people” or “creating new economic opportunities,” problems may arise with stakeholders interpreting goals differently. Reasonable time frames for achieving different objectives may vary as well. For example, teaching young people to use computers may be accomplished much more quickly than generating new jobs for the community.

To identify the objectives, evaluators may be able to obtain information from existing sources such as project documents. Where such sources are lacking or unclear, evaluators may need to interview representative stakeholders to ascertain their objectives for the project. Either way, evaluators often find that the objectives stated in documents or interviews must be clarified and made explicit before decisions on methodologies, variables and instruments can be made. For example, the Acacia Programme document states that Acacia is designed “to empower sub-Saharan African communities with the ability to apply information and communication technologies [for] their own social and economic development.” Evaluators had to work from this general goal to identify specific objectives for particular Acacia telecentre projects.

One approach to identifying objectives is to ask the various stakeholders: “What would make this a successful project?” Their answers might be, for example, that the project would:

- provide people in the community with access to ICTs;
- train community residents in the use of ICTs;
- see the telecentre being used by target groups (e.g., women, youth, entrepreneurs);
- increase awareness of the importance of information in local development;
- continue to operate past the project phase (often sustainability as an end in itself is combined with one or more of the other goals);
- promote economic development in the community (e.g., job creation, better prices for products, new outlets for products from the community); and/or
- promote social development in the community (e.g., the adoption of practices to reduce disease, improvements in community basic literacy or school completion rates, new job skills).

All of these goals have been proposed for telecentre projects by various stakeholders.

Having made these goals explicit, observable or measurable, the evaluators must then devise a plan to determine to what extent the telecentre project achieved them.

Questions they need to consider include: What does access mean? How should we define sustainability? How can we isolate the effects of the telecentre from other factors that might influence economic and social development?

RESEARCH DESIGN

Beyond anecdotes

There are numerous sources of information on telecentres including Web sites, conference papers and reports from field visits (see the appendix as shown at the end of this book). Many of these sources contain stories and anecdotes that provide useful insights and lessons learned. However, there is to date a lack of systematic evaluation of telecentre projects that could shed more light on common factors across projects and the specific short- and long-term impacts of the centres. A problem with stories is that, being based on assumptions rather than careful analysis, they may lead to unsubstantiated conclusions or over-generalisations. Consider the following statements made about telecentres:

- “Women are more likely to use telecentres if telecentre staff are women (or include women).”
- “The business model makes a difference in development impact. For example, a business-oriented telecentre is likely to contribute less to social and/or political development than one with explicit development goals.”
- “The skills and attitudes of the telecentre staff make a difference in developmental impact. For example, a person trained in tracking down information or a person with community outreach skills may contribute to more developmental use of the telecentre.”
- “Training a core group of users results in more usage of ICTs (or faster take-up by target groups) than a drop-in self-teaching approach.”

All of these are assumptions that may be based on experience at one or more sites, but have not been broadly substantiated. These could, however, be formulated as hypotheses to be tested using a research plan designed to control for extraneous factors.

Testing hypotheses: Research design

Much evaluation of ICT projects is based on case studies. Well-designed case studies can provide evaluators and managers with an invaluable means of understanding the experiences and lessons learned in particular communities. However, they may not address fundamental questions of causality, such as whether the telecentre actually contributed to the creation of new jobs in the community, or whether lessons learned could be generalised to similar telecentres in different locations or to different types of telecentres.

Where there are several telecentre sites or opportunities to track a variety of telecentres over time, it may be possible to gauge longer-term impacts and issues of causality through research designs that are known as “quasi-experimental” (because in field

settings all the extraneous factors cannot be controlled as can be done in laboratory settings). Two of these types of design are “Before-After” and “After Only.” They are not perfect, but are superior to stand-alone case studies in improving the validity and generalisability of findings:

- *Before-After* — Data on specified indicators are collected before and after the installation of the telecentre, and compared.
- *After Only* — Where no baseline information is available, it is difficult to isolate and quantify impacts. However, strategies that can be used here include:
 - retrospection, asking the users to state how they got the information or carried out the task before the telecentre was established; and
 - contrary-to-fact questions such as “If you did not have the telecentre, how would you do this?”

The danger in both of these designs is that they can lead to false conclusions (such as “the telecentre created more jobs”) because they do not control for extraneous factors that might have had this effect anyway, such as a new development initiative or a new road.

Validity and generalisability can be improved by adding a control group:

- *Matching* — Evaluators can gain better insights into causality if they can add a group of sites that are similar in population size, isolation and economic base and if they can collect the same data at all of these sites.
- *Random selection* — It may be possible to use randomly selected sites if there is a large data set to draw from, or if the project can be designed to randomise the choice of where the telecentres will be installed. However, this approach is quite rare and can only really be conducted in countries such as Senegal which have a very large number of private phone shops or cyber cafés, or which have a large existing database as generated by a baseline study in South Africa.
- *Controls using various forms of telecentres* — In countries where there are phone shops with ICTs, private telecentres and cyber cafés, these sites could be included in the sample to test the hypothesis that the business model makes a difference in usage and benefits.
- *Multiple measurements* — Whether or not a control group of sites can be included, collecting data at several points after the telecentre is installed is likely to provide better insights into causality than any single “After Only” data collection. Also, later waves of data collection will help to determine whether usage of the telecentre dropped off after initial interest, or whether demand and applications changed over time.
- *Sampling* — In collecting community data, using a systematic approach in drawing a sample (rather than interviewing the first people encountered or people known to the interviewers) strengthens the validity of the data. There are many approaches to drawing samples that are appropriate for telecentre evaluation.

As well, several steps must be taken to ensure that the data collected are reliable (i.e., that there are accurate responses to questions that were clearly understood by the respondent):

- *Pre-testing* — Instruments must be carefully designed and pre-tested to make sure that the respondents understand the questions. For example, if the code sheets specify “Youth” or “Adult” rather than asking for the respondent’s age, how are these terms defined and interpreted?

- *Training* — For field surveys, interviewers must be trained in asking the questions and coding the responses. For example, they must learn to ask the questions consistently, and to avoid asking leading questions or making assumptions about how the respondent would answer. They must also learn to follow the sampling guidelines rather than choosing people they know or skipping certain people because they feel that those individuals wouldn't know the answers or might say the same thing as the last person interviewed.
- *Spot checking* — Log sheets or interview forms must be spot checked to ensure that they are coded correctly and completely. All staff should know how to complete them and should understand that daily records must be kept, regardless of whether the manager is there or not.

CONTENT

Content availability varies substantially among telecentres. Some telecentres have resource materials such as newspapers, magazines, books and videos onsite; others only provide access to content elsewhere, for example, through the Internet. Telecentres may also provide the means for local people to create or disseminate their own content, through desktop publishing of flyers, announcements, newsletters and so on.

For evaluation purposes, it is useful to document:

- the types of content available (e.g., newspapers, books and videos) and how these are used;
- the types of content produced by the people using the centre (e.g., flyers for events, price lists for shops, announcements for weddings and funerals, or newsletters).

Researchers could then interview a sample of people who used or produced this content to find out how it was used, what difference it made to them personally or organisationally and what the demand was for additional content and media. For example, the telecentre in Nakaseke, Uganda, described elsewhere in this book, provides newspapers that are popular with older students and literate adults, as well as texts and reference books related to secondary school courses. Videos are popular with children, and the project manager uses videos of interest to the community as a means of introducing them to the facilities in the telecentre. Television sets and video recorders have been provided to telecentres operated by the Universal Service Agency in South Africa. It would be useful to track video usage (content, number of users, age group and gender of users, etc.) and to determine whether they can also attract additional users to the telecentres.

SUSTAINABILITY

The evaluation should include an assessment of the sustainability of the activity past the pilot project phase. Of course, findings on benefits and impacts will be important here. If the project has not had much impact on the target population or has failed to achieve its primary objectives, its future sustainability may be of little consequence. However, where projects have achieved their objectives or are well on the way to doing so, data should be collected and analysed as a means of determining the projects' future viability. For example, information on the following is important to have:

- Costs and revenues:
 - What revenues does the project generate now? Are these markets likely to remain stable, increase or decrease? (Reasons for the latter might include

installation of additional public telephones in the community, the hiring of additional providers of some telecentre services, and the purchase of computers and modems by the wealthier individuals in the community or the business patrons.)

- What were the start-up costs of equipment, site, training, etc.?
- What are the ongoing operating costs of the telecentre in terms of personnel, supplies, spare parts, rental, utilities, technical support, etc.?
- Are the projected revenues sufficient to cover the ongoing costs?
- What other sources of revenue might the project develop, for example, selling additional services, finding major clients as underwriters, and building operating costs into an organisational budget?
- Are there ways of reducing costs (e.g., by getting discounts from telecommunications operators, or sharing equipment or staff)?
- Facilities:
 - Has the ICT equipment proved reliable in field settings?
 - Are the power supplies and telecommunications networks sufficiently reliable?
 - Is timely technical support available when needed?
- Staff:
 - Do the current staff have the skills to continue to operate the facilities?
 - Is the current project management committed to continuing with the project?
 - Are there others who could be recruited and trained to work on the project?
- Commitment:
 - Is the activity a priority for the target groups (e.g., school district, health ministry, community)? That is, is there a strong commitment from the project's constituents to minimise the chance of the project dying or being left in obscurity, and of equipment being vandalised?

Such analysis is important, regardless of whether the telecentre is assumed to be viable as a stand-alone enterprise by the end of the project period, or whether it is expected that ongoing support from donors or government agencies will be required. For example, even if the equipment is donated, it will be important to monitor the operating costs in terms of repairs and spare parts and estimate a realistic depreciation schedule to determine when it will have to be replaced. If buildings or other utilities are donated, it is also important to estimate their real costs to ensure that these are included in estimating ongoing operating costs. And if staff are paid by project funds, it is important to estimate their costs in terms of salaries and benefits. The value of volunteer assistance should also be calculated.

This information is valuable, not only to the donors in estimating the real costs of an operational telecentre, but to the project managers. It helps them determine what revenue will be required to sustain the telecentre and what strategies will be needed to generate that revenue — such as sales of services alone or a mix of sales, donations, financial support and so on. Innovative strategies to reduce costs and increase revenues include implementing a volunteer programme with local community groups or schools as in Nabweru, Uganda, and sharing facilities with other organisations such as local government offices, schools, or community radio stations. Branching out to provide new services is another option. For example, the Timbuktu telecentre is also an Internet

service provider that can provide Internet access to patrons who decide to buy their own computers, and desktop publishing of wedding and funeral announcements has become a popular service in several South African telecentres.

LINKS TO POLICY

Evaluators should bear in mind that data from telecentres can be valuable for telecommunications policy-makers and regulators. Interviews with officials in ministries of communications and regulatory bodies could help to identify key issues and information needs. Many countries are attempting to implement universal service or access policies. Evaluators could provide information that would show whether telecentres are in fact a viable means of providing rural and community access to advanced services such as the Internet. They could also provide the specific information needed for planning purposes, such as that about traffic volumes, revenues from telecommunications services and communities of interest.

Some of these data may also be useful for oversight of the telecommunications sector. For example, data on line quality, outages and time required to restore service can help regulators monitor the performance of licensed telecommunications operators.

DISSEMINATING RESULTS

The philosophy of evaluation as learning should also be reflected in how the information gained is shared with the various stakeholders. Simply sending stakeholders a copy of a research report may not be sufficient. The evaluators should be prepared to return to the community and meet with the telecentre staff and local stakeholders to explain the findings. They may also be able to help the telecentre staff think about the changes that could be made in response to the feedback, such as providing outreach to underserved target groups, organising more opportunities for training new users, and extending the hours of operation. As well, evaluators may be able to suggest other opportunities for learning and sharing information, such as workshops for managers and staff and exchange visits between similar projects and centres.

The evaluation results should also be made available to other stakeholders — for example, funding agencies, government ministries and NGOs. Presentations at conferences, papers in journals, and postings on the Web can also help to disseminate the findings to others interested in telecentre evaluation around the world.

Much of this paper is based on research carried out while the author served as Co-ordinator of Evaluation and Learning Systems, Acacia Programme, International Development Research Centre (IDRC) during 1998 – 99. For more information on Acacia, see www.idrc.ca/acacia.

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CHAPTER 17

TELEWORKING AND TELECENTRES

*Imogen Bertin
Cork Teleworking*

INTRODUCTION

This chapter contains material drawn from the Telework, Telecottage and Telecentre Association's *Teleworking Handbook*, with permission of the TCA. The TCA is the leading UK organisation supporting and promoting the idea of teleworking. The 360-page handbook, which is now in its third edition and has sold more than 10,000 copies, can be purchased online on a chapter-by-chapter basis through the TCA's Web site www.tca.org.uk. Printed copies of the book are available from the WREN (Warwickshire Rural Enterprise Network) Telecottage (s.lewis@ruralnet.org.uk).

WHAT IS TELEWORKING?

Teleworking is working at a distance from the people who pay you, either at home, on the road or at a locally based centre. Teleworkers use e-mail, phone and fax to keep in touch with their employers or customers. Teleworking is part of a range of flexible work practices that are becoming widespread and also include flexi-time, part-time working, job sharing and career breaks.

Various terms are used to describe the new forms of work, including "teleworking" (the catch-all term for workers who use teletechnology), "telecommuting" (often used to describe those who work for one employer and spend only part of their time working from home), distance working, flexible working, flexi-place working, e-working and remote working. The terms teleworking and telecommuting are attributed to U.S. academic and consultant Jack Nilles who, in 1973, worked on the first documented pilot telecommuting project with an insurance company.

In early 1999, the European Commission's survey of 7,500 people in the European Union member states and 4,000 businesses found that:

- Of those who are regular teleworkers working more than one day a week, 81% are men.
- Sixty-eight per cent of teleworkers are in the 30 – 49 age group.

- Most teleworkers have high levels of education or are qualified professionals (60%), twice the figure for the labour force as a whole (30%).
- Teleworking is most prevalent in the financial/business services sector (8.5%) and the distribution, transport and communications sector (5.5%).
- The differences between teleworking and non-teleworking households are small, indicating that the media stereotype of women teleworking to combine family and work duties is inaccurate.
- There are considerable differences in the prevalence of teleworking in different European countries, ranging from a low of 2.8% in Spain to a high of 16.8% in Finland.

WHY IS TELEWORKING RELEVANT TO TELECENTRES?

Sustainability and income

Most telecentres face a continual fight to achieve sufficient income to maintain their services. One possible income stream involves developing teleworked business services. However, developing such services, particularly for rurally based centres that must market and deliver services over large distances, is not a trivial task.

Providing an occupation after training

Many telecentres receive the major part of their income in exchange for providing information and communications technology (ICT) training services. However, providing training without thinking about what opportunities for work may be available for the trainees on completion of their courses can lead to disappointment and to alienation of the centre management from the local community. Telecentres therefore often get involved in trying to provide work for their “graduates.” In this way, former trainees don’t have to relocate out of the area to get work, or else commute long distances.

Equipment hire

For telecentres that are based in towns or cities, renting out time on computers and Internet access is often a minor but important income stream that encourages a continuing new flow of telecentre users. Where people have access to telework but do not own their own equipment, they have greater motivation to hire telecentre equipment for longer periods, providing an income for both the teleworker and the telecentre. This is sometimes a transitional stage until the teleworker is able to afford his or her own equipment and home office.

Keeping up to date on business practices

Where telecentres are located in rural areas it is all too easy to fall behind on current ICT usage and business practices. Working for clients in metropolitan centres — or even in more developed countries — encourages telecentres to keep their software and training courses up to date, which in turn ensures that the centres’ trainees are more employable. The idea of a “virtuous circle” of interaction between telework, ICT training and child care was pioneered by the KITE telecottage in Northern Ireland (discussed in more detail below).

Enhancing the centre's community hub role

Telecentres often aspire to be 21st century community centres, acting as multipurpose providers of services and information for their locality. One of the strongest motivations for local residents to get involved with their telecentre is the opportunity of paid work. At the same time, where the local community is aware that the telecentre can take on work tasks, there are likely to be more requests for telecentre assistance with community development and commercial projects in the locality.

Creating a continuing market for telecentre training services

Many of the longest-surviving telecentres, such as the Moorlands Telecottage in Staffordshire, UK, report that it is important to ensure that trainees keep “coming back for more.” Where the telecentre can offer telework opportunities, it is far more likely that local government and other funding bodies will provide assistance with training telecentre users. This in turn allows a wide range of courses to be provided and helps individuals create their own training path, gradually gaining more skills that enable them to take on a wider variety of work tasks. This is particularly important for telecentres in remote rural areas that serve sparse populations. If they don’t create a continuing market for telecentre training, they eventually run out of trainees and may subsequently close down.

CASE STUDIES OF TELEWORKING

KITE, Co. Fermanagh, Northern Ireland

Kinawley Integrated Teleworking Enterprise (KITE) is located in West Fermanagh, close to the border between Northern Ireland and the Republic. It is a successful enterprise that sources 60% of its work from North America, and offers childcare facilities as well as training. The purpose-built telecottage is the brainchild of Sheila and Michael McCaffrey, both of whom have substantial managerial and business experience. Sheila identified the basic requirements to set up the enterprise: premises, childcare facilities, training, equipment and a market for services.

The telecottage occupies a purpose-built centre established in 1993 and has a predominantly female workforce that has received training in both managerial techniques and ICTs. KITE focuses its business on the remote management of data and has customers in the USA, UK and Ireland. KITE believes industry standards, specifications and requirements are very important, so it has involved partners to assist in ICT training and development for both the corporate and community sectors. The training emphasis is on high levels and end results.

Equipping a centre such as KITE is a continuing issue and Sheila comments, “We invest in the tools of the trade which are relevant and necessary — this is a key to success and growth in any profession. However, our decisions are based on customer needs, not on flash new technologies which may not be relevant to our customer base.”

One of the key features of the KITE development is the provision of onsite child care to supply “family friendly work.” The childcare provision originally covered preschool care but has been developed to include after-school and holiday care, as well as a variety of play and learning opportunities based on ICTs. For more information, contact KITE by e-mail at s.mccaffrey@btinternet.com.

Moorlands Telecottage, Leek, Staffordshire, UK

Moorlands Telecottage is attached to the local school and is a classic example of the telecottage as rural ICT training centre. Simon Brooks, Community Education project officer, explains that Moorlands courses focus on various aspects of information and business technology — and that around 50% of the training offered is now paid for by businesses on a commercial basis: “A lot of businesses prefer to send their staff into the telecottage, away from distractions in the office. Many courses are held in the evenings at the request of clients.”

He says, “One problem that a rural telecottage must plan for is that if the local population is small, then eventually you will run out of trainees. We get a lot of repeat business — people coming back for retraining — especially from small businesses. They might start off learning word processing to do invoicing, move on to PowerPoint to get work from clients, and then learn Excel so they can do their own accounts.”

The telecottage is also used as a referral agency by local businesses looking for teleworkers. Simon explains, “We don’t do this officially or gain any income for it because we don’t want the hassle of being an employment agency, but local businesses know that people we have trained are going to be competent and high quality, so they come to us when they need work done. We contact suitable teleworkers and tell them to get in touch with the businesses. It’s up to the businesses which teleworker they pick and to sort out the details of the job.” For more information, contact Moorlands Telecottage by e-mail at moorlands@fenetre.co.uk.

East Clare Telecottage and Training Associates, Scariff, Co. Clare, Ireland

East Clare Telecottage was established in 1991 to provide computer-based office services to businesses and community groups. Drop-in access by people wanting to use ICT equipment amounts to about 10% – 15% of the income of the telecottage unit. Services supplied include design and printing, translation, computer training, software development, Internet access and Web design.

There is also a small call centre with three workstations, set up initially with European funding as a training project. The call centre can offer order processing, reservations, data distribution and market research.

East Clare operates a network of translators who take on contract work. They keep a register of 75 local translators and work amounts to perhaps 15 person-days each week (three full-time equivalents). The network receives a commission on work obtained. East Clare Telecottage sees translation of Web sites as a new area of opportunity.

Telecottage manager Nana Luke agrees that the service offering is a wide one, but says that the main theme of success is being able to provide a “one-stop shop” — either for the printing services of the telecottage or for translation. The telecottage plans to do more Web site development and hosting in future. It is also working on a European-funded plan to develop the Teleworking NVQ further, in particular by providing training for managers of teleworkers. There are nine people directly employed by the various operations at East Clare though not all are full-time. For more information, contact East Clare Telecottage by e-mail at bealtaine@bealtaine.ie.

OPPORTUNITIES FOR TELEWORKING

Level, location and trust

Where telecentres are thinking about offering teleworked services, it is important to consider some general trends in the telework market.

In general, businesses are happier about outsourcing tasks they consider to be “professional” or “managerial,” just as they prefer to allow managerial-level staff to telework rather than clerical or administrative operatives. In essence, they trust people in professional roles to manage themselves, but feel they will have to do the management for those carrying out more basic tasks — something that is hard to do if the people in question are out of sight as teleworkers. This division is also related to location: higher level services are less sensitive to geographical location than basic services such as secretarial or bookkeeping, which tend to be sold to customers face-to-face within a “drive and drop” radius of the telecentre.

If you are a programmer specialising in Java and Cold Fusion, you can probably sell your teleworked services on another continent. But if you’re someone with basic office administration skills, your customers are likely to be located within 50 kilometres of your workplace. Most telecentre clients tend to fall into the latter category. It is therefore advisable to carry out a skills survey of your telecentre users in order to try identifying whether there are professional level skills among them which you could develop to provide a niche, high-level service.

Also ask your telecentre users what hours, and how many hours, they would ideally like to work and if there are any time constraints that need to be worked around. If your users are all women returners who only want to work from 10:00 a.m. to 3:00 p.m. because of children at school, and your teleworking business idea is to operate a small call centre, then you are going to have trouble providing staff to cover the remaining normal business hours. Where users wish to work only 20 hours a week or less, you may have extra cost burdens in providing adequate customer service and require extra quality control measures.

In 1998, the TCA supported a survey of UK telecottage activities by Bill Murray of Small World Connections. About one-third of the 165 telecentres and telecottages surveyed replied. The results, summarized below, give a snapshot of the “typical” telecottage, and this can be useful to those thinking about how teleworking is likely to relate to their telecentre operation:

- Just over 20% of the centres that responded to the survey have more than 50 regular users and 50 occasional users, but seven centres (about 13%) reported no drop-in users at all. The average is 30 regular and 30 occasional users. Only three centres (about 2%) reported that more than 10 people other than staff used the centre as a regular place of work. Over 66% have no one using their centre for regular work.
- Forty per cent of the centres subcontract work to local teleworkers.
- The vast majority of the centres (88%) are located in rural areas or small towns (rural villages 38.8%, small towns 36.7%, remote rural areas 12.2%, city centres 4.1%, city suburbs 2.0%, large towns 6.1%).
- Most centres have two full-time staff and one part-timer. Over 60% have no volunteers.

- Half of the centres are “breaking even” financially, with 33% making a loss (usually the most recently set-up telecottages) and about 28% making a profit. Only six centres that were loss-making were operating outside their own financial plans.
- Facilities vary widely. All have Internet access and 82% have a Web site. Over half have ISDN (integrated services digital network) lines. However, only 20 centres responded to the initial e-mail version of the survey questionnaire — which is hardly likely to instill confidence in potential business clients.
- Predictions for the future were increased emphasis on training, Internet access and use, and commercial work.
- Just over 33% of centres derive income from commercial operations, but 40% rely almost entirely on continuing public funding. About another 33% pay no rent.

TELEWORKING SERVICES

Abstracting, editing, proofreading and indexing

There is strong demand for these skills in combination with the ability to handle scientific subjects. An example of a teleworking business based on these skills is Crossaig in Scotland, which arranges abstracting and indexing of biomedical articles for Elsevier’s EMBASE database. The printed journals are scanned into computer text files (with optical character reading [OCR] software) at the company’s offices and then sent by ISDN file transfer to the teleworkers around Scotland. The teleworkers work on a piece-rate, but many have specialist skills and Ph.D.s in areas such as marine biology or pharmacology can earn up to £17.50 per hour for their work. This arrangement gives Crossaig access to the skills it needs, and the teleworkers access to work from remote rural areas.

Preparing press cuttings to clients’ briefs is another related niche business area, though it might require your teleworkers to work slightly unsocial hours and be in a region where they can get the relevant papers or magazines early enough to still meet the time limit set (e.g., most cuttings must be faxed through before a specific deadline each morning).

Audio typing

This market is under threat from advances in systems that allow direct dictation to computer. However, there is scope for audio dictation in specialist areas such as medical and legal transcription, where a detailed knowledge of terminology may be required. Also, in any situation where accuracy or human intelligence is important, or where the quality of the audio recording is poor, humans are needed for the transcription process. The work can range from correspondence to whole books or conference proceedings.

Bookkeeping and accountancy services

Accountants may be prepared to send out the more tedious areas of their work, such as putting purchase receipts and invoices onto computer. You will need specialist accountancy skills to succeed in this area.

Computer programming/software support

Several telecentres have been started up by computer dealers who offer tailor-made programming services to customers, as well as software training and support. Offering technical support over the telephone to new computer users also appears to be a gap waiting to be filled. But beware: you should think about getting professional indemnity insurance to cover yourself in case your advice leads to a financial loss for one of your customers.

Conferencing

Conferencing services help with telemeetings. Telecentres can offer videoconferencing and audioconferencing facilities. For videoconferencing, you must have an ISDN telephone line and suitable conferencing hardware and software.

Data conversion

Converting data from one disk format to another or from one software package to another is a commonly requested service in telecentres. Software format conversion does need some knowledge of the package involved. Also important is quizzing customers on exactly what they want to do with the resulting file, so that they will be provided with an appropriate format.

Data input

Many first-generation telecentres financed themselves with contracts from companies and government institutions to put large volumes of data onto computers. However, most historical data needed by companies has already been entered, and there is strong competition from low labour-cost regions of the world. Despite this, many companies need to continue to process data on a regular basis and, if you can offer low cost and high quality, they might be interested in a teleworking arrangement. Data input work is not generally well paid, and is usually quoted as piecework. Specialist areas such as the construction of mailing lists can be more remunerative and could be tied in with preparing mailshots or faxshots (mailings by fax).

Call centres

Call centres, where staff handle large volumes of telephone traffic, have been highly successful in the commercial sector. Such centres are used to deliver a wide range of services, most of which fall into two major categories — telemarketing and data processing:

Telemarketing services:

- central reservation services for hotels, airlines and car hire
- technical support centres for computer hardware and software
- outbound and inbound telesales
- order processing
- consumer information centres
- market research

Data processing services:

- abstracting and indexing
- health claims processing
- banking administration
- financial analysis
- magazine subscription administration
- medical transcription
- Value Added Tax (VAT) reclamation
- central order processing (e.g., stationery, computer hardware)

Call centres are a highly specialist area, both in terms of technology and marketing, and in the appropriate training of staff. The industry as a whole in Europe is starting to move towards higher-skill services to provide integrated offerings such as “shared services centres” which handle administration and accounts as well as calls. The reason for this change is that basic call centre services can be provided more cheaply from low labour-cost regions of the world. Technology is now available to allow calls to be distributed from centres to teleworkers operating from home, although take-up has not been great to date.

If your telecentre is in a remote rural area, be aware that the cost of getting calls to and from your region may rule out the call centre option. You may also not have access to broadband infrastructure or ISDN, or even to caller-line ID services that are vital to many call centre functions. However, if you are in the same local call area as a large city, this could be an area of opportunity.

Information broking

Almost every business sector needs facts of some description. Information brokers are experts at accessing paper and online information sources and distilling the results into a product they can sell to clients. Most brokers are specialists who know the resources in a particular subject area intimately. Good personal contacts are also important. Charges are usually via an hourly or daily rate, or by subscription to a briefing document.

Information services/booking agency/tourist information

Telecentres can provide ticket reservation services for professional and amateur venues. They can arrange bookings for coach services, community halls and sports facilities. Other related ideas include registers of business services and local organisations. Tourist information such as accommodation lists, sites of interest and events diaries are provided by several telecottages in holiday areas in the UK, Ireland and Australia. This seems to be a service that fits well with other telecentre activities and can attract funding or sponsorship from government agencies. A number of telecottages manage tourism Web sites on behalf of local tourism development groups.

Office services

Various virtual office services have grown up over the past five years, providing an official “front” for businesses — telephone answering, accommodation addresses and meeting space. These services aim to fulfil all the functions of a traditional receptionist/secretary on a teleworked basis.

Telecentres can also be used as accommodation addresses by very small businesses. Arranging appointments for salespeople is a service regularly requested on the TCA's weekly e-zine, *TCA Online*, which telecentre staff could take on.

Publishing, design and multimedia

There are a number of areas where teleworkers can be involved in publishing, including preparing diagrams on computer, editing text, doing graphic design and layout work, and proofreading. However, these areas all require specialist skills. It is not just a case of buying the desktop publishing software! Related areas include computerised presentations incorporating sound, graphics and animation (multimedia). Telecentres often act as the focus point for community publishing operations such as local newsletters or business directories.

Scanning

Scanners are used for three purposes: to scan text, to scan line graphics and to scan photographs. For text scanning, you will need a flatbed scanner with an automatic feeder and OCR (optical character reading) software. Text scanning works well on clean, typed manuscripts. It does not cope well with heavily edited typescripts or with handwriting (yet). For scanning line graphics such as simple company logos, a standard scanner will be sufficient. To scan photographs at high resolution you need a high-quality scanner and specialist knowledge of printing processes such as half-toning to get best results. For colour reproduction, expensive colour separation drum scanners are used. These are normally provided on a bureau basis by reprographics or typesetting companies.

Skills register

Telecentres often maintain a local skills register of individual teleworkers and can refer work to them. Sometimes the telecentre takes a percentage of the value of the work if a contract is arranged through the telecottage. In others, because the teleworkers are using telecentre equipment, no commission is taken. Some telecentres simply maintain a skills noticeboard that teleworkers can advertise on; others hold social events where teleworkers can exchange ideas and form business relationships.

Training materials

The production of training courses and training materials for distance learning is a fast-expanding market. Such documents can run to hundreds of pages and can command high prices, especially where they are prepared for professional bodies or large corporate clients. The preparation of distance learning materials requires skills in editing, teaching, high-level word processing and/or desktop publishing.

Translation services

Translation work can be often received and delivered via e-mail. Translation work can be tied in with word processing and desktop publishing services. By acting as the hub for a number of language teleworkers, telecentres can provide a comprehensive service to businesses.

Word processing and desktop publishing

Word processing (typing) services can be offered to home workers, businesses, political parties and pressure groups, community newsletters and societies. If you are in a university area, see if you can get involved in typing theses and academic papers. Another area that is more within the skills range of most telecentres than full-blown publishing services is the use of desktop publishing to prepare brochures, newsletters, price lists and instruction leaflets for local companies.

Web page design

The production of Web pages is something that many telecentres have tried. To produce Web pages, you need appropriate authoring software and a working knowledge of HTML, the programming language used. It is a big help if you have graphic design or information editing skills, as many client companies are not good at putting together clear information or understanding how to structure it for use on the Web. Some Web sites include forms and other areas for users to enter information. Programming skills in CGI scripting, in database-related languages such as ASP, and in Java (the programming language used to send small, self-running programmes over the Internet) are in high demand, but the market for basic Web page design is highly competitive.

LEGAL, TAXATION AND SAFETY ISSUES

Employment agencies and the law

Many countries have legislation that requires those who act to obtain work for others to have an employment agency licence. This can affect telecentres that provide a marketing function for their trainees or associated teleworkers, and should be checked in detail.

Employment and self-employment

Telecentres often have a casual relationship with teleworkers who use their premises but are not employed directly by them. Rules for employment, self-employment and employer responsibilities vary widely depending on the jurisdiction you are working in, but it is often the situation that the telecentre does not want to employ the teleworkers directly because of the wide range of responsibilities it may have to take on through labour legislation. Therefore, in setting up teleworking arrangements, the telecentre management should discuss this issue and probably take advice from an accountancy or legal professional.

Health and safety

In general, telecentres are responsible for the health and safety both of their employees and the telecentre users. As users will be accessing computers the telecentre must comply with national legislation on the use of VDU (video display unit) workstations, such as the following European Union regulations:

- Screens should be clear and stable, bright and free from glare, and should swivel and tilt easily.

- Keyboard characters should be adequately arranged and the keyboard should be adjustable, with sufficient space available to support the user's hands and arms.
- There should be sufficient space to allow the user to change positions and vary movements. The work desk should be sufficiently large and the document holder adjustable and stable.
- Lighting conditions should be satisfactory.
- Glare and reflection at the workstation, as well as radiation levels, should be minimised.
- The work chair should be adjustable in height and in the position of the back rest.
- A foot rest should be available if required.
- Environmental factors, including the effects of reflection and glare, noise, heat and humidity, should be minimised.

The following should also be avoided:

- *Insufficient power sockets leading to over-use of extension leads, trailing cables and adaptors* — The use of ICT equipment usually requires two additional power outlets and one or two telecoms sockets. Safely stowing cabling is important. Home offices may also need rewiring for more sockets. All installations should be checked by an electrician.
- *Hazardous equipment* — Electrical equipment must be checked for safety (e.g., all cable grips must be in place; there should be no burn marks on plugs or cracked sockets).
- *Shelves situated inconveniently* — When a person frequently places and replaces heavy files on shelves, there is risk of stress on the spine and overbalancing if the shelves are not conveniently placed relative to the workstation.
- *Office chairs and tables* — They should be adjusted to the appropriate height for long periods of work.
- *Reading glasses unsuited to close work* — Anyone working with computers should have his or her eyes tested, and the optician should be informed of the computer work.
- *Poor artificial lighting* — Spotlights and Anglepoises in small spaces are generally less tiring on the eyes than fluorescents. Light levels should be about 350 lm per square metre. Screens should be positioned at right angles to windows. Blinds to prevent sunlight making screens hard to read should be installed where needed.
- *Poor air supply* — Temperatures should be as near as possible to 18.5 degrees Celsius. Adequate ventilation is also important where equipment such as laser printers may give off ozone or other fumes.

Data protection legislation

Many countries have enacted legislation intended to ensure that computer-based data is protected and personal confidentiality respected. Telecentres must have appropriate procedures in place to comply with such legislation. Where work is taken into the centre for clients, the burden of complying with such legislation will increase, particularly if work involving the preparation or maintenance of mailing lists is involved.

Security

A survey of telecentres carried out by the TCA in 1994 showed a number of problems with user supervision that could affect the confidence of businesses considering telework to a telecentre:

- About 33% of the telecentres that responded to the survey felt that people could get into their offices undetected during office hours.
- Once inside the building, visitors were generally supervised by centre staff or clients, but fewer than 50% of the centres reported supervision “all the time.”
- More than 75% of telecentres had no signing-in or visitor’s badge procedure.
- Almost 50% allowed access to the office outside office hours by clients.
- Only about 25% had an alarm system.
- Almost 50% described their environment as “loosely controlled.”
- Only 30% had any kind of disaster recovery plan.
- Only 40% had plans for provision of alternative telephone lines.
- Only 20% had plans to cope with power supply loss.
- Fewer than 50% required users to employ passwords when accessing computers.
- Fifty-three per cent of telecottages reported at least one security incident. No incidents of hacking or computer fraud were reported, and the level of deliberate computer misuse was low compared to that found by national surveys, although misuse incidents — including loading illegal (copyrighted) software, introducing viruses and running up large unauthorised online charges — were reported.

QUALITY CONTROL

Successful telecentres pay close attention to quality control, and some (including KITE, profiled earlier in this chapter, and IWS, profiled below) have even gone as far as obtaining ISO certification for their quality-control procedures. Such certification can be an important trust-building measure for businesses thinking of outsourcing telework, but it involves a major investment in creating paper trails and appropriate procedures which may be too great a burden for smaller or recently started telecentres.

MARKETING CENTRE-BASED TELEWORK

The success factors for those telecentres that have achieved income from teleworking include:

- resourcing a dedicated marketing function for bringing in the work;
- focusing on niche services, preferably at professional services levels;
- building adequate telecommunications infrastructure;
- providing professional response to enquiries;
- establishing quality control procedures;
- acquiring a suitable pool of trained teleworkers; and
- instituting suitable measures to ensure protection of customer data and confidentiality

Providing such a high level of service may be beyond the financial and human resources of your telecentre. It usually requires employing someone with good marketing experience who may also have specialist knowledge of a particular sector or service. Such people don't come cheap, and many community-based organisations are not prepared to consider such a high level of expenditure on one staff member. If this is the case for your organisation, then think twice about looking to telework as an income source. However, examples such as Innovative Work Solutions (IWS) and Lasair described below show that telework can be a viable option for telecentres that are prepared to plan and invest in their teleworking services.

IWS, Haverfordwest, Pembrokeshire, Wales

Innovative Work Solutions (IWS) is providing what it describes as a "high-quality temp service," using teleworkers from west Wales. According to the Web site: "Companies don't have to limit their activities to skills available locally. Teleworkers can take the strain of a direct mail campaign, or fill in for staff during peak holiday periods. Using our services also allows companies to expand output without increased premises costs." As well, IWS ensures that:

- Its teleworkers are qualified and trained.
- The teleworkers have access to suitable hardware and software that matches the company's requirements.
- Full in-house technical support is provided to the teleworkers.
- Job specifications are checked and the job is completed to ISO 9000 quality standards.

Each job carried out by IWS has a worksheet that specifies the requirements for the job, such as spacing, tabs, paragraph styles, preferred spellings, page layout, fonts and formats. Typical administrative services (e.g., word processing by someone with RSA II or III qualifications and a minimum of three years' office experience) costs about £5.50/hour.

Over 90% of the work carried out at IWS is translations (especially Welsh) for companies such as TV station S4C, which delivers and collects its work entirely by e-mail. Rates for translation work are about £10.00/hour. However, despite a 100% increase in turnover for the last year, manager Malcolm O'Brien says that business is static. This is because funds for their marketing consultant dried up, so that the only active marketing currently carried out is a Yellow Pages ad.

Initially, IWS had more than 100 teleworkers on its books, but quickly found that only around 20 of these were "really useful," with about another 20 being of "fringe" value. The remainder were deleted after a period of inactivity. Malcolm describes translation as an administratively intensive business where work has to be checked rigorously, and where disputes sometimes arise over subjective issues like dialect and expression. He's also worried about the new UK tax regulations relating to subcontractors and feels that these may prove a major impediment to IWS's teleworking and consultancy services. For more information, contact IWS by e-mail at www.telecottages.org/iws.

Lasair Ltd., Benbecula, Outer Hebrides, Scotland

Donnie Morrison is one of a number of people to return to the Western Isles of Scotland. Formerly the sales and marketing director of a computer company, Morrison

set up the skills register for Highlands and Islands Enterprise (HIE) board, and then followed this up with the start-up of Lasair (which means “red hot” or “flame” in Gaelic), a limited liability company providing editing services. The first client was an American company indexing and abstracting business journals. Currently Lasair has about 20 people, mainly women, carrying out the work.

Other Lasair clients include the Metropolitan Police Forensic Laboratory, the legal journal *Scots Law Times*, and various scientific publishers. “At first we made the mistake of restricting the register to IT skills. It is now just a skills database. We look, for example, for people with language skills and then give them the IT skills,” says Donnie. The Lasair teleworkers required grants of up to 70% for their equipment. They are self-employed and have to “bid” for any available contracts. However, commercial margins are tightening for this type of work because of competition from low labour-cost locations, and there is also the threat of “smart software” that could make some of the work obsolete.

Training has also proved to be too costly when carried out on a one-to-one basis, so Lasair requires teleworkers to come to a central office for induction sessions and training. Teleworkers stay in contact and support each other through the First Class conferencing software package that runs over the Internet. Donnie has recently moved on, leaving marketing for Lasair to those who have become expert in the work, such as director Kathleen Turner. For more information, contact Lasair by phone at 01870 602757 or by e-mail at kathleen.turner@compuserve.com.



CHAPTER 18

TRAINING TELECENTRE MANAGERS, STAFF AND USERS

*Bill Murray and Cathy Murray
Small World Connections, UK*

*Simon Brooks
Staffordshire County Council and Training Director, UK Telework,
Telecottage and Telecentre Association (TCA)*

INTRODUCTION

Telecentres have been closely associated with training, particularly information and communications technology (ICT) training, since their inception. Many of the early Scandinavian and North American telecentres were essentially ICT training and awareness-raising centres, funded under government training programmes aimed at improving computing and communications skills amongst remote and/or disadvantaged groups. Many telecentres have also offered computer-based training on non-ICT topics to local citizens who lack easy access to such training through more traditional methods.

However, it is not only the telecentre users who need training. Telecentre staff, and particularly telecentre managers, need to develop a range of business, administrative and community support skills. This chapter examines the training schemes that have been established in telecentres across the globe and makes some suggestions for future training initiatives.

TELECENTRES AS TRAINING CENTRES

Training provision is the main focus of many of the surviving telecentres in Scandinavia where the movement originated. Many Danish and Norwegian centres now function as a part of local employment programmes.

Training services are also crucial to the commercial success of many of the more than 200 telecentres in the UK. According to Murray and Cornford (1998), training income increased in importance in 1995 – 1998 and was predicted to become even more important over the following three years. Internet courses in particular were seen as being likely to be in great demand. The UK government recognises the value of the

electorate improving their information technology (IT) skills as means of achieving sustainable economic development and lifelong learning. Initiatives such as IT for All and Learn Direct (www.ufiltd.co.uk) are testament to this, and UK telecentres have played an active role in both of these by becoming “IT for All Centres” and “Learn Direct Access Points.”

The Australian telecentre networks — the Queensland Open Learning Network, the Tasmanian Online Access Centres, the Gippsland Centres Network, and the Western Australia Telecentre Network (described elsewhere in this book) — were established primarily to provide tertiary-level students in rural and remote communities with the technical and social support vital for successful off-campus study, and to give the community access to and training in ICTs. The Australian Senate Economics References Committee says about their success:

The greatest value of the [Australian] telecentre program appears to be gradual community learning; a slow and steady acquisition of skills; and awareness of opportunities outside small and often isolated locations.... There are many other positive features of the telecentre network which directly impinge on the working habits of telecentre communities. For example, in Western Australia, telecentres deliver education services to remote families. In-service training for professionals like doctors, nurses and teachers is also delivered via the Telecentre program. (Australian Senate Economics References Committee 1995)

In the USA, the Community Technology Centers’ Network (CTCNet) has helped establish hundreds of telecentres in low-income urban and rural areas. A CTCNet (1998) survey revealed that the vast majority of these centres’ clients used them to improve their work or find jobs, and most respondents reported that the telecentres had helped them overcome their fears of computers and increase their self-confidence and skills in using them. The training programmes range from the most basic to the more advanced computer skills — often without charge.

The South American pioneers in Brazil sought to open telecentres based on a multipurpose model composed of:

- a public services module,
- a tele-office module,
- a business module, and
- an educational module.

According to Goussal (2000), it was the educational module that would later prove to be the key factor in the successful operation of the Brazilian community telecentres. This module was designed to “promote the application of technology to formal education and training for the workforce and for micro-entrepreneurs, by means of on-the-spot and distance courses on the use of tele-informatics.” It had three objectives:

- to give backing to literacy programmes by computer-based training;
- to provide training courses for the workforce through multimedia tools and computer-based training; and
- to sustain training in information technology and communication technology, combating by means of seminars and courses the “computer illiteracy that leads to ignorance and rejection.”

Goussal (2000) subsequently found that the Brazilian telecentres were “having a strong impact in [their] role as a support to formal teaching, possibly as a result of inadequate resources or capacity or timetable limitations in the computer infrastructure of colleges and local training centres. Usually, this is not the case in developed countries, where telecentres are less in demand for fulfilling this role.”

Such training is applied in widely differing contexts. For example, as shown in the case study in Chapter 9 of this book, the AMIC@s in the Municipality of Asunción in Paraguay were designed to provide basic training and ICT services in support of democratising learning, decentralising public management, and encouraging community participation in some of the poorest areas of the city. At the other end of the scale are the telecentres established in Ecuadorian Amazonia to train men and women in the indigenous communities of Dureno (Cofan), San Pablo (Secoya) and Orahuehaya (Siona) in using electronic communications (Goussal 2000).

Training continues to be a key feature in the other telecentres being set up around the world, particularly in the developing world as the least-advantaged have to fight to avoid becoming even more disadvantaged in the Information Age. As evidenced in the case studies in this book, the training offered through these centres may include:

- formal secondary and tertiary education studies;
- literacy and numeracy skills development;
- language skills;
- instruction for farmers in new agricultural techniques;
- ongoing professional development for remote specialists such as doctors and nurses;
- development of new information industry employment skills (e.g., in Web design and call centre training);
- specialist courses using computer-based training methods; and
- training in ICTs.

Elmer (1999) writes:

The community-based “telecentre” model under experimentation in a number of developing countries may well represent a new organisational form for delivering quality educational services on a more equitable and cost-effective basis . . . Educational applications could include drill and practice for math and language instruction; reading comprehension programs; simulation programs for science and geography instruction; hyperlinked reference materials; collaborative learning programs; and workforce training modules focusing on content and skills acquisition, as well as professional development.... Despite the lack of empirical evidence . . . the telecentre model appears to be a promising option for reducing knowledge gaps within developing countries and for contributing to “education for all” policies in the emerging Information Age.

Telecentres may provide resources and technical facilities for self- or guided study and for videoconference, e-mail and talk-back TV access to specialist tutors. They may encourage and support users to engage in a number of personal development/training activities within or outside the centres, depending on their experience, motivation, knowledge, skills and technological competence. Such activities include, for example:

- undertaking work-based projects or assignments;
- observing experts or colleagues at work;
- reading books and specialist journals;
- engaging in open or self-managed learning; and
- attending workshops, courses, seminars or conferences.

All of these training strategies can also be used to train policy-makers, managers and staff in the work of leading, managing, operating and evaluating telecentres, and each has particular advantages and disadvantages, as summarized in Table 18.1.

TRAINING THE POLICY-MAKERS

When government departments, non-governmental organisations (NGOs) and commercial sponsors consider the need for telecentre initiatives, there is often a total lack of appreciation of what such centres can and cannot achieve. Many policy-makers are more concerned with broader economic and political issues and fail to recognise the very important developmental role that training performs in telecentres, telecottages and telework. They often make the mistake of assuming that providing access to ICT resources will automatically lead to local benefits, ignoring the training and support that are needed to help people use these tools to maximum effect. It is therefore extremely important that some form of face-to-face or mediated orientation or training be used to help policy-makers and others in key positions make informed assessments of particular proposals. In March 1999, the International Telecommunications Union (ITU) sponsored such a telecentre workshop in Tunis for delegates from the Arab States. This was developed and run by the authors of this chapter and the materials provided to the delegates (and to attendees at a subsequent workshop in Damascus) are available on the ITU Web site (www.itu.int/ITU-D-UniversalAccess/seminar/tunis/papers/papers.htm).

TRAINING THE TELECENTRE MANAGERS AND STAFF

All of the telecentre projects in the regions first experimenting with this new community resource bore testimony to the importance of providing training support and guidance for telecentre managers and staff, enabling them to learn from the experiences of others. As Fuchs (1997) observes:

It is extremely important that telecentre staff have some involvement in a program of continuing training and that they be associated with institutions that are doing research and development in areas of telecommunications and systems development. Over time, telecentre managers come to be the lead resource in the community for technical leadership. They need to be as knowledgeable as possible to play this role successfully.

The importance of training telecentre staff was also one of the main conclusions of a study into community technology centres in the USA (Cisler et al. 1999). It was observed that the quality of the staff and their skills, attitudes and ability to work with people from a variety of different backgrounds were paramount to the success of such centres:

All program staff — not just the agency director — should be able to articulate the value of the technology program. And programs need a

Table 18.1: Modes of training and their advantages and disadvantages.

TYPE OF TRAINING ACTIVITY	ADVANTAGES	DISADVANTAGES
Undertaking work-based projects or assignments	<p><i>For user:</i> Can be tailored to specific work environments Can relate to work being done <i>Overall:</i> Cost-effective</p>	<p><i>For user:</i> Needs great self-discipline to find the time in the workplace Needs support from management and colleagues</p>
Observing experts or colleagues at work	<p><i>For user:</i> Can pick up tricks of the trade Can learn skills which are not easily learned from books or theoretical courses Can be receive ongoing support and mentoring Can go back for more information or to clarify a point</p>	<p><i>For user:</i> Can pick up bad habits if the expert makes mistakes <i>Overall:</i> Problem-solving is often a silent process, so it is not always obvious what the expert is doing unless he or she is prepared to explain Experts and colleagues are not always prepared to help; they have their own work to do and helping others slows them down</p>
Reading books and specialist journals	<p><i>For user:</i> Can keep up-to-date with the latest ideas and practice Can learn independently and at own pace Can be selective about what material to use</p>	<p><i>For user:</i> Can be time-consuming Can be difficult finding relevant information amongst a large amount of other material <i>Overall:</i> Outside the main cities and centres, can be difficult to give users access to good, up-to-date material Can be expensive if the books and journals have to be purchased Motivating users can be a problem Lack of a National Quality Standard can make identifying “quality” learning material/sources difficult</p>
Engaging in open learning or self-managed learning	<p><i>For user:</i> Can do the work at any time, in any place (within reason), and at own pace</p>	<p><i>For user:</i> Needs motivation and stamina Needs good self-management of time May need certain technical competencies <i>Overall:</i> May be difficult for those only accustomed to traditional classroom-based teaching or training Can be costly, particularly where courses are fee-for-service or use “high-tech” facilities</p>
Attending workshops, courses, seminars or conferences	<p><i>For user:</i> Can meet with other people who have similar development needs and interests Can keep up-to-date with the latest ideas and current practice</p>	<p><i>For user:</i> May have to travel some distance <i>Overall:</i> May involve the user leaving the workplace or impose additional demands on work time May lack any follow-up or ongoing support Lack of a National Quality Standard can make identifying “quality” events difficult</p>

“jack of all trades” program director, who combines strong administrative and management skills, broad-based knowledge of computer hardware and software, teaching skills, and proposal writing skills. Finding and training the kinds of staff needed to create successful programs is a challenge, one that we observed in the programs that we studied. People with technical skills are much in demand, and nonprofits compete with industry, where salaries and working conditions are usually more attractive for qualified staff. CTCNet is exploring several approaches to professional development in community technology programs, but the scale of the challenge calls for coordinated effort by nonprofit support organizations.

The idea of co-ordinating effort in this area has also been proposed at various forums of ITU and other international agencies. Many ICT-based projects flounder because of insufficient attention to the training, not only of the users or clients, but of the managers and staff responsible for such projects. This has also been found to be the case with telecentre projects, where it is not the availability of the technology that is crucial, but its acceptability and appropriate application. High-quality ongoing training is crucial to ensure that the providers are familiar with these technical resources, aware of their strengths and weaknesses, and capable of using them to maximum advantage. However, this is not the only requirement.

Raul Roman of Cornell University conducted a survey into training for telecentre managers. His work (Roman 2000) involved a panel of 45 experts from 17 countries — 23 from Africa, Asia and Latin America, and 22 based in Europe and North America. He concluded:

From the results of the questionnaire, it is clear that business and financial skills are a priority. It is not only the essential ability that was mentioned most often by the panelists, but it is one of the topics massively rated as very important in the survey. It also denotes that most panelists had a business-oriented model of telecenter in mind when they filled in the survey, and thus it gives an idea of the importance given to sustainability. Computer and technical skills was the other most prominent topic.

According to those surveyed, management skills and computer skills were the “necessary prerequisites” to making telecentres work. There was strong support for the idea of structured training for telecentre managers and the great majority of the respondents agreed with the idea that “a general training program for telecenter managers and staff can effectively be adapted to different experiences and cultures.” Drawing on the information provided by the panellists, Roman drew up the following list of training modules that would satisfy most of the expressed needs:

- communication and development
- the role of telecentres in development
- the role of the telecentre manager
- basic computer skills
- basic business and financial skills
- information production skills
- needs assessment skills and evaluation (research) methods

- training skills
- participation skills
- human resource management
- marketing and public relations skills

TRAINING SUPPORT NETWORKS FOR TELECENTRES

Ideally, as soon as a telecentre network or system is set up, there should be some form of co-ordinated training provision and infrastructure. As Dr. Lars Engvall (2000), President of the International Association of Community TeleService Centres (CTSC), observes:

There is no limit to the possibilities which these centres can offer to rural and urban development. There is, however, a need to create an organisation which supports such telecentres with skilled manpower (i.e., training programmes), where dynamic persons from the provinces, districts or communes can be offered to take on this challenging task.

It would, however, appear that while telecentres are used around the world as bases for training those in the community, there has been relatively little effort put into training the staff responsible for promoting and providing or facilitating that training.

Community-based telecentres are often poorly funded and heavily reliant on voluntary effort from within their communities. Such is the effort needed to get the centres built and equipped that there is little left in the way of time and resources to ensure that the managers, staff and volunteers are adequately prepared for the work. Some individual projects address this issue, but they are often doing so in isolation and “re-inventing the wheel.” Projects are much more likely to thrive and perform well if they can receive some training support through such international agencies as ITU, UNESCO or the International Development Research Centre (IDRC), and national and professional organisations, as described below.

Scandinavia

The Association of Nordic Telecottages (FILIN) was the world’s first telecentre association, established in 1986. FILIN launched the newsletter *FILINFO*, conducted the first survey of telecentres (Qvortrup 1987), and established a “network of competence” designed to help individuals exchange experiences and co-ordinate qualifications. This association was instrumental in the successes of the early telecentre movement in Scandinavia and provides an exemplar for other countries.

United States

The CTCNet (Community Technology Centre Network) in the U.S. is a national association comprising nearly 300 community technology programmes/telecentres. As Cisler et al. describe it (www.idrc.ca/pan/telecentres.html):

CTCNet provides technical assistance (through its staff and affiliates), peer support (through on-line communications, national and regional meetings, and print communications) and examples of best practices

(through its Web site and other publications, and through a new program called the Community Technology Leadership Institute).

Access to CTCNet resources helps community technology centre staff in the U.S. to:

- find appropriate hardware and software for a variety of audiences and purposes;
- set up local area networks;
- identify funding sources;
- design evaluation instruments;
- deal with the challenge of preventing inappropriate use of computer equipment;
- train staff and volunteers;
- develop partnerships with other community institutions;
- customise curricula and materials for use by particular age, language and other groups; and
- schedule the use of computers and other facilities.

The excellent *Center Startup Manual* published by CTCNet contains a detailed blueprint for community organisations setting up telecentres. It covers community needs assessment, site preparation, budgeting, staffing and other components.

United Kingdom

The UK Telework, Telecottage and Telecentre Association (TCA), established in 1993, has been instrumental in supporting the development of the telecentre movement in the UK and helping many of the early telecentres find initial funding. The TCA provides members with a range of services, including an award-winning newsletter, seminars/conferences, offers on teleworking products and services, an advisory service, access to the TCA online electronic forum (www.tca.org.uk), information about job opportunities, political lobbying and reports/surveys on telecentre activities (Murray and Cornford 1998).

The TCA was also the key initial organisation behind the development of the UK National Vocational Qualifications (NVQ) in Teleworking, which assembled the key skills of a teleworker and teleworker manager into a single training programme and qualification. The TCA has also supported the development and promotion of training materials for these courses (described in more detail below) and was the certifying body for these awards until recently, when the certificate was formally adopted by the UK Information Technology National Training Organisation (ITNTO).

Australia

A number of national conferences have been held in Australia to promote and share experience in telecentre management and operation. The WA Telecentre Network, described in Chapter 2 of this book, organises annual conferences and provides training for its 76 local telecentre management committees and telecentre co-ordinators. All of these events are organised through the central Support Unit. This Support Unit also provides Regional Co-ordinators whose role it is to provide guidelines, information materials and advice for communities starting up new centres and ongoing training for the management committees and telecentre staff on a regional and individual as-needed basis. As the channel through which most funding is sought and obtained, the Support

Unit is in a strong position to require and support on-the-job training for all of those who must: survey the community needs and business opportunities; draw up the business plans, documents of incorporation, constitutions, Memorandums of Understanding and resource and performance agreements; compose the annual reports; and provide the ever-widening range of services.

Hungary

An extremely proactive approach is being planned in Hungary, where the Hungarian Telecottage Association (HTA) (www.telehaz.hu) is developing a competency-based telecentre management training qualification loosely based on the UK Teleworking NVQ. The President of the HTA, Matyas Gáspár, is working closely with telecentre specialists in the UK to develop this programme. He says, in a recent e-mail to the authors:

The rapid increase in the number of telecottages (by the end of year 2000, nearly 200 telecottages will have been established in the last two to three years), as well as the increase in the number of people working in the field (currently approximately 400 people) has caused an intensification of interest beyond the non-profit sector. Along with increasingly intense interest in utilisation of the network by state agencies, local governments and the private sphere, these factors heighten the importance of quality services, high quality level, reliability, and stability of the network. The answer to this challenge is based on one essential element: the training of telecottage leaders and employees, which currently takes place in an eclectic manner, alongside everyday tasks and responsibilities and in conjunction with certain grants.

Argentina

The Argentinian telecentre movement does not yet have a well-developed training system for telecentre staff. The sketchy government guidelines for selecting such staff from the local communities suggest that at least one member of staff in each centre should have technical knowledge and experience of computers and LANs and at least one other should have a teaching background in formal or vocational education or in-company training, and preferably have skills in educational applications of ICT. The guidelines also suggest that all staff should demonstrate an “open, flexible, receptive, social-oriented profile” suitable for working with the public and maintaining strong links with the communities they serve. However, Dario Goussal, Professor of the Department of Electronics Universidad Nacional del Nordeste at Resistencia, Argentina, observes that such requirements are “loosely accomplished” in most communities. In an e-mail to the authors he says:

Initial training of the local leaders was undertaken by means of a 40-hour course, almost entirely devoted to basic technical matters which, for different reasons, was poorly designed and organised. It was clear that the contents and the design of such training was rather imposed by their respective providers (e.g., Microsoft and a national university, at the time largely engaged in TV courses about Microsoft applications).... Consequently, I suppose that local leaders should have almost no training on the main subject we had suggested for training (how to run a community telecentre).

Egypt

Dr. Sherif Hashem, Assistant Professor of Engineering Mathematics at the Faculty of Engineering, Cairo University, Egypt, recently appointed to the Ministry of Communications and Information Technology to launch a national telecentres programme, is interested in the idea of a national training programme for telecentre staff. In an e-mail to the authors he said:

Currently, there are no special training programs prepared for telecentre staff. At the Ministry... where we are running a project to establish 120 computer training centres [telecentres], we are setting up minimum requirements for basic training of trainers program, in addition to setting the minimum qualification requirements for each staff position. Similar requirements were set before in the case of Kid's telecentres or Kid's Clubs, which is another national telecentre program.

South Africa

South Africa is heavily promoting telecentres. Polly Gaster of CIUEM, Mozambique, and Mike Jensen, a South African telecentre consultant (both contributors to this book) reported to the authors in e-mails that UNESCO was in the process of developing a telecentre start-up and operating manual for the country's community telecentres. Polly Gaster also reports that in Mozambique:

We have two [telecentre] pilots, we organised special courses for the total of four staff in computer skills, basic administration and finance and promotion/marketing, and followed up with on-the-job support of one kind or another.... Of course everything is in Portuguese.

Mike Jensen mentions that the South African Universal Service Agency (USA) has run a number of ad hoc courses for telecentre operators, details of which may be found at www.usa.org.za. Peter Benjamin of the University of the Witwatersrand, South Africa (contributor of Chapter 7 of this book), ran a five-week basic management training course for 50 telecentre managers in South Africa in late 1997 and in February 2000, implemented the Vodacom-Link training project on computer literacy for telecentre managers in Johannesburg.

Portugal

In Portugal, the National Telecottage Association, TC-Portugal, was instrumental in setting up 20 rural telecottages in 1992 – 1993 to revitalise rural areas. The training programme for the Telecottage Managers was closely based on the original City and Guilds VQ Level 3 for Telecottage Managers and Supervisors developed by a European-funded partnership involving the UK TCA in 1993.

Other countries

In a recent e-mail to Gaston Zongo of the IDRC, Gilles Cliché of the IDRC/CRDI indicated that he was not aware of much training activity in telecentre management but that there had been some programmes on ICT, both for trainers and trainees:

Among them are the Uganisha project at IDRC and its ITrain component with a modular approach and a multicultural and gender sensitivity (unganisha.idrc.ca/itrain/); the CLACSO Buenos-Aires Distance Training on Internet and Teleworking with material in Spanish (www.clacso.org/rdr97.html) . . . an initiative of the Latin American Network of Networks; and a proposal to infoDev from the Association for Progressive Communications (APC) for an Online ICT Resource Centre for the Global Development Community.... [These] may not be directly or specifically targeting telecentres, but they can certainly serve their training needs, at least in part, and they make use of the technology itself in the delivery and production of training material.

Roman (2000) also includes interesting examples of telecentre training cited at a September 1999 meeting in Quebec on telecentre evaluation. These were in regard to the Colombian Neighbourhood Information Units (NUI), Peruvian franchised Red Cientifica Peruana (RCP), Uganda Acacia National Programme (in association with the National Foundation for Research and Development), and the Paraguayan, Ghanaian and Benin community learning centres in the LearnLink Project.

TRAINING COURSES AND MATERIALS

A wide range of courses and materials (some free) exists on the topics/modules identified by the Cornell survey (Roman 2000). Nationally and internationally recognised qualifications have also been established for computer professionals, computer users, telecommunications specialists, accountants and bookkeepers, human resource personnel, professional, marketing and sales staff, managers, trainers and community development specialists. But these are all general. What is lacking are specific courses and materials for telecentre managers and staff which contextualise these topics in telecentre or telecottage environments.

Arguably the best provision is in the area of teleworking. The European Commission has supported a considerable number of projects in this area. Under its ADAPT, EMPLOY and ICT programmes, it has helped to promote a number of national telework training schemes, including the UK Teleworking NVQ scheme (www.itnto.org.uk), and has supported transitional initiatives such as the European Computer Driving Licence certificate (www.ecdl.com) and LocalNet, the European Telework Manager Training Project (www.bealtaine.ie).

ADAPT is the European Social Fund's Human Resource Community Initiative designed to help employers and workers anticipate industrial change and deal with its effects. It has a specific priority, called ADAPT-BIS (Building the Information Society), linked to new information and communication technologies and human resources. *Telework: Some 100 Examples from ADAPT* states:

ADAPT deals particularly with the impact of industrial change on workers and employers in small firms. Projects encourage attitudes and mechanisms which help workers, managers, service providers and policy-makers to prepare themselves for future evolution and change. ADAPT's telework projects are, therefore, concerned with the impact of technology on people — human resources — not specifically with the technology itself.

About 20 projects concerned with training teleworkers (including telecentre staff and users) have been supported under the ADAPT initiative. Most of these concern the introduction of teleworking or the training of teleworkers. Some are concerned with new types of telework in electronic commerce such as call centre agents and dispatchers, telemarketers, and help desk officers. Others focus on jobs in virtual banking on the Internet and clinical information systems, including online medical consultation. These projects have developed and tested a range of telework training programmes and a considerable amount of training material, much of it using multimedia and Internet technologies.

As indicated by the Cornell survey, teleworking covers a diverse range of skills and there has never been a single qualification covering all these. This problem was recognised by the TCA in 1993 and, through a European Commission-funded project (operating under the EUROFROM initiative) was addressed through the teleworking New Vocational Qualification (www.itnto.org.uk). This award was validated by both the UK City and Guilds Awarding Body and the TCA. Launched in early 1994, this programme, which comprises 20 units covering ICT, business administration and personal development skills, has gained in popularity and now more than 80 centres are registered to run this award scheme.

A partnership involving the Scottish Qualification Authority, ITNTO (Information Technology National Training Organisation) and European Commission's Leonardo-funded LocalNet project through the TCA, enabled a Teleworking NVQ to be developed as successor to the original Teleworker NVQ. The UK Qualification and Curriculum Authority formally approved this new award in June 1999 and it is now offered at both NVQ Level 2 (Using IT for Teleworking) and Level 3 (Managing IT for Teleworking).

Level 2 is targeted at teleworkers and telecentre users. Level 3 is aimed at managers and supervisors of telecentres and teleworkers in business and government organisations. As of July 2000, the Level 2 and Level 3 NVQs are being offered by the Scottish Qualification Authority (SQA), City and Guilds Awarding Body and the OCR (Oxford, Cambridge and RSA Examinations) bodies. The development of this qualification has also been supported by the LocalNet project, which is also developing a set of training materials for the qualification (see www.bealtine.co.uk and www.smallworldconnections.com). Some of the units are based on existing NVQs offered by, for example, the Small Firms Lead Body, Management Charter Initiative, and Employment National Training Organisation. Candidates are required to complete nine units — five mandatory and four from a group of 16 optional units.

The titles of the mandatory units are as follows:

- Ensure Your Own Actions Reduce Risks to Health and Safety
- Develop Your Own Effectiveness and Professionalism
- Manage the Effectiveness of a Teleworking Environment
- Maintain Information Technology Used for Teleworking
- Manage the Use of Electronic Communication in a Teleworking Environment

The optional units offer the trainees opportunities to:

- Design and produce documents using word processing software
- Design and produce spreadsheets
- Design and use databases

- Design and produce documents using graphics
- Design and produce presentations using information technology
- Assess the potential of the proposed business
- Investigate the requirements of any legislation to be complied with in setting up and running the business
- Establish how to finance a business start-up and keep track of money once the business is operating
- Develop a strategy for marketing and sales
- Contribute to the selection of personnel for activities
- Contribute to the development of teams and individuals
- Lead the work of teams and individuals to achieve their objectives
- Respond to poor performance in a team

These NVQs provide a radically new approach to training and certification in that the qualification requirements relate directly to the skills and knowledge needed in the workplace. In other words, the awards are competence based and not examination based. The assessment is flexible and related to the actual work done, but not done in a way that compromises the assessment's quality and reliability.

Any telecentres or telecentre networks looking for an effective framework for providing training to telecentre managers, staff and users should consider most carefully this list of topics and those identified by the Cornell survey and CTCNet (set out earlier in this chapter). Table 18.1 could act as a checklist for determining the most appropriate strategies for developing knowledge and skills in these critical areas.

CONCLUSIONS

The telecentre movement is barely a decade old, and in many countries it is still in its infancy. There is enormous and urgent need to train policy-makers and planners, telecentre managers and operatives, as well as the users of these centres. These needs must be considered and addressed at the very earliest stage, and systemically.

A number of international and national agencies, countries and networks have taken significant initiatives in this area and models of best practice and exemplars can be identified. There is now need for a greater sharing of expertise and resources to enable training to be accelerated and applied universally. There is need for more training of trainers and more training resources for this purpose. It is highly desirable that the telecentres should themselves make greater use of distance education techniques, training their own personnel through a mix of online, resource-based, face-to-face, and hands-on learning. It is important that such courses and materials exemplify the best principles of instructional design for individual or group learning. Much of this material already exists around the world, awaiting adoption or adaptation, and collaborative action is needed to share the expertise and the costs.

It is also important for the individuals managing telecentre systems to recognise that while training interventions are important, performance in real-work situations is also influenced by the organisational reward systems, inter-personal and power relationships, and values, norms and focus of the communities served. These challenges must also be addressed by those who lead such systems.

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www.tca.org.uk

New UK Teleworking NVQs

The New NVQ Standards assembled by ITNTO (Information Technology National Training Organisation; www.itnto.org.uk) were formally approved in June 1999. The new awards are:

Using IT for Teleworking — Level 2
Managing IT for Teleworking — Level 3

Copies of the new standards for these awards can be obtained from ITNTO at 16–18 Berners Street, London W1P 3DD (Tel: 0171 580 5577). Cost is £8 each.

To date, the Scottish Qualifications Authority (SQA), the City and Guilds Awarding Body and the OCR bodies (Oxford, Cambridge and RSA Examinations) are offering the award. For further information about the award in Scotland and centres offering the award, telephone the SQA Helpdesk at 0141 242 2214. For information on the award and centres offering the award in other parts of the UK, telephone City and Guilds Customer Services at 0171 294 3333 or OCR at 024 764 70033.



CHAPTER 19

TELECENTRE TECHNOLOGY

Mike Jensen

Independent Internet Consultant, South Africa

David Walker

*Education Specialist (Educational Technology Media),
The Commonwealth of Learning*

INTRODUCTION

This chapter discusses the range of technology options and technology issues that need to be considered in planning and developing technology for telecentres. It covers determining the users' needs and the applications to meet those needs, putting the infrastructure in place, and selecting, installing, managing and maintaining the various technological components of a telecentre system.

Technology lies at the core of the telecentre concept and can undoubtedly bring enormous benefits to communities. But it is important to avoid falling victim to "technology determinism," the pressure to be fashionable and have the latest technology. Funding is usually scarce and is needed not just for equipping the centres, but for staffing, training and running the system. It is therefore essential that the networks, hardware, software and other priorities be guided by the community requirements and centre's strategic plans, rather than by sales pitches or false expectations of what can be achieved.

RADIO SYSTEMS

Portable, low-cost FM transmitting stations and digital radio systems that transmit via satellite and/or terrestrial cellular networks are being implemented in many parts of the globe. Internet streaming audio software technology allows a global audience to listen to news from various countries, and wind-up and solar portable radios free conventional radios from the need for expensive power sources in remote and rural situations (see, for example, Freeplay Energy [formerly Baygen Power] at www.freeplay.net). In designing a sustainable telecentre model, it may be useful to look to such technologies.

To establish a Commonwealth of Learning-supported telelearning centre in northern Uganda, the first step was to set up an FM radio station. This was seen as an invaluable means of giving a sense of identity and focus to the community, preserving the local culture and language, providing emergency medical services, and delivering formal and non-formal education and agricultural extension programmes for farmers and agro-food processors. It was also seen as a way of generating revenue by, for example, broadcasting community-based announcements and market and commodity prices. It is hoped that the income stream from, and interest generated by, these services will lead to computing and other services.

TELEPHONY

Telephone lines

The primary objective of many telecentres is to create public telephone access and then introduce a range of other services dependent on this backbone, such as fax, e-mail and Internet/Web access.

The minimal set-up for a basic telecentre is usually three lines: one for voice, one for fax and one for Internet access. However, if the telecentre is small and phone services are not to be major part of its operation, it may be possible to start with a single phone line for voice, fax and Internet services. It is possible for up to 10 computers to share the same phone line for simultaneous Web access. But, since a single line will not allow concurrent use of voice, fax and the Internet, this resource will have to be carefully shared. If e-mail can be provided off-line (for example, via a batched data communications protocol called UNIX to UNIX Copy [UUCP] provided by an Internet service provider [ISP]), then the phone line will only be needed for short periods for sending and receiving e-mails.

Telephones

If the telecentre intends to offer audioconferencing, then hands-free and speaker phone facilities will be required, through the use of headphone-microphone headsets or a loudspeaker telephone set. Audioconferencing can help build group relationships and understanding, and sessions can be initiated at fairly short notice. However, applications are time- and place-dependent for the users and the connection costs may stretch the budgets of some providers. A combined telephone/answering machine unit will be useful, especially if the centre is only to be open at certain times of the day.

Some telecentres may find need for additional long-distance cordless phones such as those operating in the 2.4 GHz waveband. With a range of up to 5 kilometres, these can be loaned out, for example, to the house-bound, and used by centre managers and staff when travelling from the centres. With some models, call time is indicated on the handset. Other systems allow up to eight handsets on the same base station to communicate directly with each other without using the phone line. If cell coverage is available, a mobile cellular telephone can be used in the same way, employing pre-paid cards with a magnetic strip or a chip (often called "SIM cards"). Cellular links are very expensive and are probably better avoided unless a special tariff can be negotiated with a provider. However, where no land lines are available, cell phones may be the only option.

Call accounting systems

Telecentres dependent on basic telephone access for a major part of their revenue may need to install specially designed call management units attached to the telephones. These provide digital read-outs of the accumulated call charges as they are incurred and can be attached to a call accounting system at the reception desk or other payment point. The call accounting system normally accommodates pre-payment and post-payment accounting options and provides printouts of the cost of each call. To provide such functions for a number of phone lines, a small PBX or software PBX running on the computer server will be needed.

There are more basic call accounting systems, but they have a number of limitations. A separate meter is needed for each line and must be paid into by the user and cleared and reset each time a call is made. There is no facility for attaching the meter to the cash/transaction register or using debit "smart cards." Records are only stored for one day and printed out at the end of each day in a shift report. With such systems, charging for voice calls, faxes and dial-up Internet access and tracking usage (an essential requirement for sound business planning) can be extremely time-consuming and prone to error.

Call accounting systems normally require the availability of the pulse-per-unit service provided by the telecom operator. It is possible to manually load tariffs into the call accounting system, but this requires inputting rates for every dialling code, including international codes, and these must be changed every time the operator changes the tariffs.

Systems that connect to a PC-based billing system are available from the U.S. and Canada, but these are often not adapted to use the local telecom operators' method of signalling the cost for call accounting through, for example, a pulse-per-unit system.

Fax

There are now many integrated fax/printer/scanners on the market. However, a stand-alone Group 3 fax is recommended because this can be used without having to interrupt or await a print job.

A line dedicated to fax may be necessary in larger telecentres, but sharing the fax number with one of the voice lines may be possible if there is no requirement for unattended reception of faxes.

The number of low-cost Internet-based fax services which can substantially reduce usage costs is increasing. Services such as Fax4Free (www.fax4free.com) provide free faxes, including Microsoft Word documents of up to 250 K, to anywhere in North America, the UK and Australia. Free incoming fax numbers can also be set up which will translate the incoming faxes and send them via e-mail as attachments.

COMPUTER SYSTEMS

Some telecentres may be forced to start out with only one computer, but more commonly centres are equipped with several machines. In a multi-computer environment, one machine will normally be dedicated to administration, the sales or service desk or other staff use, and the others made available to the telecentre users.

It is now possible to purchase standard multimedia computers for less than US\$1,000. Many telecentres use machines with a minimum of 4 Gb hard drive, 64 Mb of RAM (random access memory), sound card and a Pentium II processor. A more detailed minimum specification for a telecentre's computer is:

- Pentium 350 MHz CPU
- 32 Mb RAM
- 4 Gb hard drive,
- 24X CD-ROM
- 1 Mb PCI video card
- 10/100BaseT Ethernet port/card
- Sound Blaster compatible full duplex sound card
- diskette drive
- 14-inch monitor
- keyboard
- microphone
- speakers and headsets (to reduce noise)
- mouse
- UPS (uninterruptible power supply) and surge protector (where the power supply is unreliable and to protect electrical equipment and computers from damage caused by power surges, storms and lightning)

As it becomes necessary to increase the number of computers, it may be possible to add older or recycled machines. These may be donated by companies upgrading their equipment or purchased from computer recyclers for about US\$100 – \$150. Such machines may not provide all the services of a full multimedia PC, but they can be more than adequate for users requiring only word processing and access to the Internet.

One recent development that will certainly reduce start-up and operating costs is the network computer (NC). This is similar to a PC, but has no moving parts and relies on a central server for all of its software and data storage. The NC environment provides access to all standard applications and usually comes with free Internet applications (word processing, videoconferencing, voice mail, spreadsheet, e-mail, Web browsing and Web authoring). Because these NCs are so much simpler to manufacture, they can be obtained and maintained at a significantly lower cost than standard PCs. Stripped-down Windows Compatible NetPCs without hard drives now cost less than US\$500. At the time of writing, one South African retailer was marketing an NC for US\$300 (it uses a TV set as the monitor and accesses the Internet and other applications residing on a server stationed at the ISP). Some NCs cost as little as US\$200. Most NC set-ups can now also provide video and audio on demand if there is sufficient disk storage space. An NT server can also be added to provide access to Microsoft Office applications if necessary.

Internet/Web access

Telecentres without any form of telephone link will only be able to provide stand-alone computer-based services, TV and radio, and possibly downloaded news, weather and market prices via a satellite broadcast link using DSTV (digital satellite television) or WorldSpace, a commercial digital satellite radio service. Such services can be a vital

first step in the life of a telecentre, after which it is hoped the other telecommunication services will follow.

Where it is impossible to obtain Internet access by local telephone call, there will probably be more focus on e-mail services than Web access. It is extremely expensive to make long-distance calls to access the Internet. If there is a large enough number of Internet/Web users to justify this cost, it may be cheaper to install a permanent Internet link via wireless or leased line. In remote areas where there is no prospect of lines becoming available, although the set-up costs are higher, cell phones or VHF/HF radio or low-earth orbit (LEO) satellite-based e-mail links to a hub can provide sufficient connectivity.

Some countries do not allow private entities to sell access to telephone or Internet services to third parties, but most do not place any restrictions on the private resale of telecommunications and related services. Some countries have progressive tariffing policies. In Senegal, for example, private telecentres receive a 40% discount on call tariffs. Unfortunately, to date, very few other telecom operators have developed a tariff policy that specifically encourages the development of privately run public access services. This means that telecentres often have to pay standard residential tariffs for calls made, leaving little room for mark-up.

Local area network (LAN)

If only two or three PCs are being used, they can be linked at low cost with either standard co-axial Ethernet cable or a small 4-port hub. As demand for computing facilities grows, it is recommended that the PCs and/or NCs be linked via a 100BaseT 16-port Ethernet hub (a 16-port hub is recommended because this is only marginally more expensive than a 8-hub port). A second hub can be daisy-chained to the first hub if further expansion is necessary. Machines will need 100BaseT Ethernet cards and 100BaseT Category-5 (CAT-5) cabling. The 100BaseT is now the accepted standard and will provide future upgrading options for videoconferencing applications and NC operation.

Wireless LANs are becoming increasingly popular. These allow easy expansion and connectivity with neighbouring buildings without the use of cabling. Currently, these are significantly more expensive than a self-installed cable network, but compared to contracting a company to lay cable, the self-install wireless option is considerably cheaper. With the use of small antennas, buildings up to a few kilometres away can be linked into the same network, providing they are visible from the telecentre. Adding amplifiers, wireless networks of up to 70-kilometre radius can be achieved, as long as they still have "line of site."

Computer use management systems

As with the telephone system, manually recording online computer use is time-consuming and prone to errors. For accounting and billing associated with Internet access and related services, telecentres may wish to install a management billing system. This is especially useful where there are users who come in every day for just a few minutes to check their e-mails.

There are various computer use management systems on the market, some software- and some hardware-based. The preferable solution is to use smart card technology to

identify and bill the user. This reduces the administrative burden of billing, as the user has only to be billed each time the card needs recharging or the system credits are used up. It also provides roaming ability, ease of use, and greater functionality and convenience (the smart card contains the users log-in and password, Web browser bookmarks and other personalised application information). With NC technology, this is done relatively easily via a built-in smart card reader on each NC. The smart card identifies the system's user on the server, which tracks minutes of usage through the existing administrative system and can be programmed to terminate access after a pre-set time. An add-on smart card reader and administrative system is available for standard Windows machines from France-Telecom's I-Card division. In this system, a smart card is issued to each user, charged with the credits they have bought or been given. For US\$200, a smart card reader is plugged into the serial port on each PC. The I-Card administration software allows the cards to be recharged with credits at the rate defined by the centre, controls which applications the user can access and can charge each software programme at a different rate.

Another possibility is to use one of the growing number of public-access kiosk systems with built-in smart card and coin readers. Some of these also provide a touch screen and printer. Examples of these include the South African Post Office's Public Information Terminal (PIT) and the US PatLink System.

Printers

Some telecentres operate with a printer attached to a single PC. In a multi-PC environment, there should be one printer to every 8 – 10 computer systems, all linked via the LAN. There is a wide variety of different printers to choose from, and choice will depend on price and the type of work to be done. The old dot-matrix printer is no longer acceptable because of the poor quality of its output. Ink-jet printers are popular, costing much less than laser printers, but their cartridges are expensive. If centres plan to offer printing services, it is cheaper in the long run to purchase a laser printer. Telecentres providing desktop publishing services for their local communities will need printers capable of providing commercial quality and output levels.

Modems

Modems enable computers to send and receive data over telephone lines and gain access to the Internet/Web. Modem speed is measured in bits per second (bps) or Kilobits per second (Kbps). The higher the rate, the quicker the transmission. To receive graphic images, a rate of 14.4 Kbps or higher is normally required, but text can be received at even 2,400 bps through high frequency (HF) or LEO satellite links, ideally in compressed format, which results in an effective through-put of about 7.2 bps. More recent modems should be able to operate at 33.3 Kbps or 56.6 Kbps, depending on the quality of the local telephone network. In some areas where there is a lot of interference on the lines, or a Wireless Local Loop system has been installed by the telecom operator, it may not be possible to operate at speeds greater than 7.2 Kbps.

Videoconferencing

Videoconferencing has all of the advantages of audioconferencing plus the advantage of letting the users see the people, objects or visuals at the other site. It can achieve major savings in travel costs. However, it also incurs high investment and high connection

costs and few telecentres will have the demand or resources to justify these, at least at the start-up stage.

High-quality videoconferencing requires a digital line, typically ISDN (integrated service digital network), which is rarely available in remote and rural areas. However, there is now increasing use of Internet-based videoconferencing. This uses standard dial-up phone lines and only requires the addition of a small VideoCam, costing US\$50 – \$100, to the PC. The quality of desktop videoconferencing is variable and certainly not as good as standard ISDN 128 Kbps or 384 Kbps videoconferencing, but it represents an affordable option where there is need for this form of communication.

Software

The most common computer applications in telecentres are desktop publishing (for local businesses, community groups, schools, adult education programmes and so on), spreadsheets, and Internet- and Web-based activity.

Centres are making increasing use of the public domain LINUX operating system, which comes complete with a number of free applications such as Netscape, WordPerfect and StarOffice (an MS-Office look-alike). The South African SchoolNet Programme uses Taxis, a public domain e-mail software package based on UUCP, which runs on both old and new computers and cuts phone costs with its high-speed protocol. For older PCs (such as 286's, 386's, etc.) which have trouble running the full suite of Microsoft Windows and Office products, there are other options such as LINUX, and the New Deal or QNX packages which provide a full suite of e-mail, word processing and Web-based applications.

There has been much discussion about developing software for different languages. However, research indicates that users in all countries prefer productivity tools with English menus, except for recreational software, which they prefer to be in their own languages. There are a variety of free or “shareware” packages available to assist users whose first language is not English.

Computer training aids

Telecentres have a key role in training people in computing and need to develop a range of resources for those users who are willing and able to learn and practise on their own or with minimal guidance.

Most software packages come complete with their own manuals. There are also many commercial “at a glance” step-by-step guides for the more popular software applications (e.g., the *For Dummies* series).

Computer-assisted materials providing self-paced tutoring and remediation are also increasingly available, ranging from programmes designed to familiarise first-time users with the basic functions and operations of the computer, to packages providing comprehensive training and trouble-shooting for every aspect of computing. Games such as Solitaire can also be useful for familiarising users with basic computing skills, while programmes such as Print Shop show beginners how to produce greeting cards, pamphlets, letterheads and personalised calendars.

For those lacking in typing skills, there are software-based typing tutors. The best of these give feedback and provide tests appropriate to user skills levels. Both Mavis Beacon or Typing Tutor are very popular.

Audiotapes can be used for self-instruction in computing or typing. These can be played in a Walkman or tape recorder with a headset, are relatively inexpensive, and allow the trainees to stop, rewind or fast forward as required while working at the keyboard. The major disadvantages of these aids are that they require users to follow set sequences and do not provide personalised advice, remediation or answers to questions.

Videotapes are not as effective as might be expected for computer training because the users have to continually shift attention from the TV to the computer screen. And unless the users wear headsets, the sound is distracting to others. Also, as with audiotapes, the users cannot ask questions or seek help for their problems.

Educational and training software

Educational and training software is developing rapidly in sophistication and capacity to allow users to express their ideas, access the content they need and receive individualised feedback. An increasing amount of educational and training content is also now delivered via the Web, rather than stand-alone software. However, many users are unsure of their capabilities and unused to self-managed learning, so they often still need the support of skilled trainers or facilitators. It is therefore advisable to regard such material as augmenting face-to-face instruction or demonstration, rather than taking the place of it.

It is important to check with others what is best for particular uses or applications. It is also a good idea to see what scope there is for sharing courseware with other local providers to minimise costs and ensure that any packages brought in or specially developed bridge the gaps in, or supplement, the existing provision.

Communications software

Access to the Internet will continue to be another priority activity for telecentres, in all likelihood via dial-up rather than leased line. Ideally, centres should be able to access the Internet for the cost of a local telephone call. Centres at a distance from the nearest Internet access point and charged for long distance calls are likely to restrict Internet usage to e-mail services. However, as the number of users grows and more local Internet points or POPs (points of presence where ISPs set up a modem bank and Internet server for local dial-up users) come online, leased line services may be added. If there are schools, clinics or other organisations within the local community needing online services, it may even be possible for telecentres to become suppliers of dial-up or leased line (via cable or wireless) connectivity to these.

To access the Internet, each computer or computer network will need a modem, phone line and account with an ISP. It is best to take out a contract with an ISP that can provide a complete set-up/installation service and guarantee good technical support. To reduce the operating costs, and thus the charges to the end-users, it is important to use the most efficient Internet protocol available, thus minimising the telephone time needed to transfer messages and data.

Ideally, the local ISP should be able to provide:

- A *dial-up PPP (Point to Point Protocol) account for access to the Web* — This single account can be shared simultaneously by multiple PC users with the installation of demand dial software such as Mailbridge/LANBridge, Diald or Wingate on the telecentre's server. Depending on the quality of the line and speed

of the upstream connection from the ISP to the national Internet backbone, a standard 33 Kbps dial-up link from the telecentre should be able to support at least four or five simultaneous Web users and possibly allow eight or more workstations (PCs/Network Computers) to be accommodated on the link (as many of the users will probably not be using it while reading or writing their e-mail).

- *One batched compressed UUCP mail account and domain-name per telecentre for e-mail* — This allows the telecentre to house, manage and create e-mail accounts locally, and optimises the use of the telecommunications link. The server will regularly pick up and send compressed e-mails, the users can work on their e-mails off-line at all times, and the compressed UUCP transfer protocol is four to eight times faster than the standard TCP-IP/POP (post office protocol) used by most e-mail clients. All of these features reduce the costs of the e-mail accounts.
- *Web-hosting services* — The ISP or other national Web-hosting agency can be asked to make provision for the Web sites of telecentre clients to be established at one central site. Alternatively, users can make use of Web-hosting provided by one of the free U.S. or European Web services, such as Tripod.com or Geocities.com.

Copyright

It is important to remember that all commercial software is protected by copyright. If a telecentre plans to share software between a number of computers by means of a LAN (local area network), it is important to ensure that the software purchases are compatible with the specific server to be used, and that the licensing agreement accepts LAN usage.

Where a telecentre has connections with business or educational institutions in the community, it is useful to establish whether these institutions have already negotiated site licence agreements that can be extended to the telecentre.

OTHER EQUIPMENT

Photocopier

Where telecentres share accommodation with other organisations, sharing the photocopying facilities may be an option. However, most telecentres will find that they need their own photocopying facilities.

The new integrated four-in-one fax/photocopier/printer/scanners may be used for low volume copying (1 – 10 copies), but a separate high volume machine may need to be installed where larger print runs are necessary.

For larger volumes, an alternative to the standard photocopier is the increasingly popular range of digital printers from RISO. These are essentially updated duplicating machines that can cope with very high volumes, provide far cheaper copy than standard photocopiers, require less maintenance, and operate in very hot or dusty conditions without the frequent breakdowns associated with traditional photocopiers. While the RISO printers cost about the same as photocopiers, they are not cost-effective for once-off copies. Therefore, a separate low-volume integrated fax/scanner/printer/copier may still be necessary.

A photocopier with a collator may well be needed in telecentres that offer large print-runs.

Binding machine

Where there is demand for copying or printing booklets and reports, a binding machine is very useful and can have income-generating potential. There are several binding systems to choose from — including velobinding, thermal binding and plastic or wire comb binding — and several types of cover material to protect the documents. The choice of system will depend on the usage levels and the types and sizes of the documents to be bound. In selecting a system and particular model, it is also very important to check out the reliability of supply and the costs of the consumables.

CD burner/writer

With a CD burner/writer costing no more than US\$200, a telecentre can record, store and distribute cultural, community and newsworthy events, archival material and musical CDs, and make back-ups, distribute Web sites, save databases and make copies of CD-ROMs.

Scanner

Hand-held scanners cannot be used effectively for books or publications. The most efficient type of scanner for scanning documents, photographs, maps and other such material is the flatbed scanner, similar in design to a photocopier. In this, the material to be scanned is placed face down on a glass slab or platen. Software for manipulating and editing scanned images and documents is also needed.

Laminator

Laminators — machines that cover documents with a thin film of plastic — can be offered as a commercial service to preserve documents from alterations, spillage and damage. There are two types of laminating. Cold laminating is ideal for wax-based or heat-sensitive material such as photographs, thermal paper and some printouts from ink-jet printers. Hot laminating is used for non-heat-sensitive material. The choice of machine again depends on the level of demand, size and types of material to be laminated and, of course, the budget.

Paper shredder

A paper shredder will be needed where there is need to destroy confidential documents and client information. Shredders range from small desktop models to large, free-standing, automated machines complete with waste bins.

Digital camera

Digital cameras allow picture files to be copied from camera to PC to create documents or e-mail attachments without the expense and time delay of film processing. This can be very useful to centres wishing to operate as e-mail post offices, provide support for archival and field work, take passport and ID photographs, record important events and provide VIPs and other visitors with permanent records of their visits. Digital video cameras are also available and make it possible for videos to be added to e-mail.

Video cassette recorder (VCR)

Having VCRs on hand allows broadcasts, videoconferences and pre-recorded educational, training, information or entertainment programmes to be viewed at a time of the user's choice. Telecentres offering dubbing services will need two machines, preferably of the same make for compatibility. A long-play function is also desirable and, in terms of picture quality, the more heads the better.

Projection equipment

If the telecentre is to provide training or be hired out for this purpose, an overhead projector and screen may be useful. However, a word of caution here. There have been many cases of centres being equipped with these and their never being used. Generously resourced telecentres may also wish to provide for slide, video and computer projection. However, if they are near major centres, it may be more economical to hire these as needed.

EQUIPMENT AND SERVICE PROCUREMENT

In acquiring any equipment, a telecentre must always consider such critical issues as:

- the users' needs,
- the income generation potential,
- the recurrent costs and costs of any upgrading,
- compatibility,
- possible redeployment at other locations, and
- maintenance and repairs.

Equipment acquisition costs can be reduced by bulk-purchasing or inviting tenders (particularly where a number of telecentres or partner organisations are involved); negotiating with manufacturers or suppliers for free, at-cost or demonstration equipment, or equipment for field-testing; and buying second-hand equipment.

On the latter point, there are many examples of centres making excellent use of second-hand telephone systems, photocopiers, computers, printers, filing cabinets and furniture acquired from various sources. The savings can be substantial. For example, one computer recycling charity in South Africa provides five reconditioned 486 PCs for US\$1,400. Technology is continuously advancing, and what is old and obsolete in one place is often still new and usable in another and can sometimes be combined with more up-to-date systems. Even the oldest PC can be used for word processing and e-mail videoconferencing.

Among the disadvantages of second-hand or recycled hardware: some users may feel they are being denied the best and most up-to-date facilities and services; the hardware may not be able to run new software versions; and maintaining the hardware and locating replacement parts or suppliers may be difficult.

While equipment is likely to be cheaper when bought in bulk and centrally, central maintenance and support agreements are generally too costly for many telecentres. Therefore, wherever possible, service agreements should be made with local providers.

Maintenance carried out by local suppliers will minimise costs, decrease down time, and help build local capacity.

Warranties and service agency support should be clearly established with the suppliers.

Equipment that fails under warranty will probably have to be returned to the original supplier or the manufacturer, possibly mediated by the local service agency.

SECURITY

Care must be taken to ensure the security of the telecentre equipment and cash. Telecentres are, by definition, public places. Internal security measures include constant vigilance, marking the equipment with special identification marks, taking careful note of the serial numbers to make it easier to detect stolen items, and possibly securing equipment to desks and benches. Strong locks, window bars and alarm systems may be necessary in high-risk areas. In some cases, where the centre is free-standing, security fencing may be needed. Some centres even find it necessary to employ guards by day and by night.

HEALTH AND SAFETY

See Chapter 17 of this book for a description of important health and safety factors.

INSURANCE

The equipment needs to be insured. This can be very expensive, but in some cases it may be possible for the sponsoring or host institution to include the equipment on its own insurance register for a small additional cost.

WIRING

It is possible to run telecentres on solar power. Further information concerning solar solutions can be found at www.siemenssolar.com. However, the start-up costs for this are substantial, so it is preferable for telecentres to be located close to the national power grid. Back-up facilities such as generators, batteries and invertors are strongly recommended for areas where power supply is intermittent.

Whether the telecentre is planned for new premises, an existing building or even a container, it is important to plan the wiring at the same time as all the other planning. Such a plan should indicate:

- the radial or ring wiring and cabling for all the technical facilities, lighting, heating and air-conditioning systems, and other appliances;
- the location of all the floor and wall electrical outlets for the computers and peripherals (a maximum of six systems per outlet), and other electrical appliances;
- wiring for the LAN; and
- the location of all telephone connections for the user services, reception area, office telephones and faxes.

There should be separate isolators/fuses for the PCs, the air-conditioner and the telephone system. It is also critical that the electrical wiring is earthed, even during the

dry season when the water table is lower. This will minimise the impact of lightning on equipment, but special lightning arrestors also need to be placed on the PCs and telephone equipment in areas prone to electrical storms. And all electrical wiring should be tested to ensure that it is earthed before any equipment is installed.

The new integrated cabling that allows a telephone or LAN port to use the same socket is ideal, but specialised skills are needed to install this and so it is likely to be costly. In many existing buildings, it will be far cheaper to simply use extension cords to stretch the required cabling from the existing power and telephone sockets.

To link the PCs into a LAN, CAT-5 cable is the standard. Ideally, this should be in ducting, but for networks of three to four PCs, it can simply be laid around the periphery of the room. Cabling can be restructured as telecentres expand and more funds become available. Alternatively, a wireless LAN system can be used. Wireless LAN network cards for the PC or laptop are more expensive than standard cable-based cards, but wireless LANs are a good alternative to getting specialist companies in to lay cables, because LANs can be installed by the local technicians.

CONCLUSIONS

This chapter has suggested ways of making the right choices and combinations of technology. It is important to remember that all media and all technologies have their inherent strengths and weaknesses. Technologies should be used where they can help communities achieve goals otherwise unachievable, and where they can be integrated into the local system and culture.

Technology is no longer exclusively top-down or centre-peripheral in its working. It enables initiatives to be taken at any point or points across the network, and it allows users to work and speak from within their own communities on the matters that are important to them. As well, technology can be cost-effective and cost-efficient. However, it also raises important issues of access and equity and there is need for collaboration to minimise costs, ensure articulation and compatibility, and share best practice.



APPENDIX

WEB SITES AND FURTHER REFERENCES

TELECENTRES AND ICT FOR DEVELOPMENT: GENERAL

Brokers Organisation for Teleworkers with e-commerce www.telemart.org

Bytesforall: A voluntary initiative in India collating information on Internet use in South Asia and channelling it to interested groups in the region www.bytesforall.org

CentraTEL: A resource for the global telecentre community sponsored by The British Council www.centratel.com

Centre for Development Research (ZEF Bonn): Information and communications technology in low-income countries www.zef.de/zef_englisch/f_propro_neu.htm

Commonwealth Knowledge: An initiative by The British Council, OneWorld Online and Article 19 www.commonwealthvoices.org

Community Technology Centers Network (CTCNet) www.ctcnet.org

Food and Agriculture Organisation (FAO): “The first mile of connectivity.” A report on applying the lessons of participatory communication and training to rural telecentres www.fao.org/waicent/faoinfo/sustdev/CDdirect/CDan0010.htm

Global Knowledge Partnership: Information on ICTs, knowledge management for development, and telecentres www.gkaims.globalknowledge.org

Greenstar Foundation: Solar community centre and solar e-commerce www.greenstar.org

International Development Research Centre (IDRC): “Telecentres: How can they contribute to social development?” www.idrc.ca/pan/chasqui.html

IDRC: Telecentre evaluation www.idrc.ca/pan/evaluation.html

International Institute for Communication and Development (IICD): Information and communications technology, sustainable development and community telecentres www.iicd.org/projects/docs/1504.01

International Journal of Technologies for the Advancement of Knowledge and Learning www.TechKnowLogia.org

International Telecommunications Union (ITU): Development of rural telecommunications and pilot projects in community telecentres www.itu.int

ITU WorldTel www.world-tel.com

LearnLink, (a partnership between the United States Agency for International Development and Academy of Educational Development): Promoting local development by providing public access to information and communication technologies www.aed.org/learnlink

PANOS, Media Briefing No. 28, April 1998: "The Internet and poverty"
www.oneworld.org/panos/briefing/interpov.htm

Telework, Telecottage and Telecentre Association (TCA) www.tca.org.uk

Tennessee Valley Infrastructure Group telecenter suppliers: An integrated infrastructure platform www.tvigroup.com

UK Container Project: Mobile workstation for underprivileged peoples
www.container.access-it.org.uk

United Nations Development Programme (UNDP): Information and communications technologies for development www.undp.org/info21/index5.htm

UNDP. Knowledge networking for sustainable development
www.undp.org/info21/pilot/launch.html

United Nations Educational, Scientific and Cultural Organization (UNESCO):
Telecentre links www.unesco.org/education/educprog/lwf/links/mct.html

UNESCO: Internet in Africa www.unesco.org/education/educprog/lwf/links/iafr.html

UNESCO: Learning Without Frontiers (LWF)
www.unesco.org/education/educprog/lwf/lwf_docs.htm

UNESCO: Virtual communities, informatics, etc. www.unesco.org/cii

UNESCO: WebWorld, communications, information and informatics
www.unesco.org/webworld/publications

Vodacom South Africa: Community service
www.vodacom.co.za/aboutus/communityser.asp

World Bank: Information for Development (*infoDev*): A programme for the innovative use of communication and information technology www.infodev.org

WWW.Telecentres.Org.: The Electronic Communications Network and Resource Centre for the Telecentres Movement www.telecentres.org

TELECENTRES AND ICTS FOR DEVELOPMENT: IN EUROPE

Communities Online: New ICTs in communities and neighbourhoods
www.communities.org.uk

Community Channel: "Connecting policy-makers and practitioners in the information society" www.communitychannel.org.uk

European Telework Online www.eto.org.uk

Hungarian Telecottage Association (in Hungarian) www.telehaz.hu

ICT Learning Centres initiative: "Helping your community get ahead"
www.dfee.gov.uk/ict-learning-centres

Making the Net Work: Getting the organisation or neighbourhood online and creating local technology centres www.makingthenetwork.org.uk

National Rural Enterprise Centre www.nrec.org.uk

Networks Online: Sharing the net benefits www.networksonline.org.uk

Partnerships Online: Creating online communities for neighbourhoods and networks
www.partnerships.org.uk

RuralNet: Grass roots rural development through ICTs www.ruralnet.org.uk

SOCITM Information Society Route Map: UK telecentres
www.socitm.gov.uk/rm/rm-tcntr.htm

Swedish Teleworkers Association (in Swedish) www.enter-by.net

Telecottages Wales www.telecottages.org

Telework, Telecottage and Telecentre Association (TCA) www.org.uk

University for Industry (UfI) initiative www.ufiltd.co.uk

Warwickshire Rural Enterprise Network (WREN): One of England's premier demonstration telecottages www.nrec.org.uk/wren

TELECENTRES AND ICTS FOR DEVELOPMENT: IN AFRICA

Africa (General)

AfricaEducation: Education and development in Africa www.africaeducation.org

African Virtual University: A distance education programme for sub-Saharan Africa
www.lavu.org

ANAINS: Information and communication technologies in Africa www.anais.org

Association for the Development of Education in Africa, African Information Society Initiative (AISI) www.bellanet.org/partners/adea

BMI-TechKnowledge Group: *The Millennium Communication Technologies Handbook 1999* www.bmi-t.co.za

InfoDev: Telematics for African development www.infodev.org

International Development Research Centre (IDRC): Acacia telecentres initiative in Africa www.idrc.ca/acacia/telecentre.html

IDRC Acacia telecentres initiative: South African Web site www.idrc.org.za

IDRC Acacia initiative: Communities and the information society in Africa
www.idrc.ca/institution/e1_acacia.html

SANGONet: South Africa's non-profit Internet service provider www.sn.apc.org

Télécentres en Afrique (in French) www.esmt.sn/telrur/contxt/telec.htm

Telecommons Development Group: Rural access to information and communications technologies: the challenge of Africa www.telecommons.com

UN Economic Commission for Africa (UNECA) African Information Society Initiative (AISI): Information and communications for African development
www.un.org/depts/eca/it.htm

UNECA: "Building national information and communications infrastructure for sustainable development in Africa"; 53 country profiles prepared for ADF'99
www.bellanet.org/partners/aisi/nici

Benin

ANAlS: Benin informatics policy www.anais.org

Burkino Faso

ANAlS: Burkino Faso informatics policy www.anais.org

Congo

ANAlS: Congo informatics policy (in French) www.anais.org

Egypt

Sharkeya Governorate: Technology access community centres www.tacc.egnet.net

Ghana

ANAlS: Ghana informatics policy www.ainais.org

Asante Akim multipurpose community telecentre project www.ghaclad.org

LearnLink, a partnership between the United States Agency for International Development (USAID) and Academy of Educational Development: Community learning centres in Ghana www.aed.org/learnlink/task/CLCs.html

Guinea

ANAlS: Guinea informatics policy (in French) www.anais.org

Ivory Coast

ANAINS: Ivory Coast informatics policy (in French) www.anais.org

Madagascar

ANAINS: Madagascar informatics policy www.anais.org

Mali

ANAINS: Mali informatics policy (in French) www.anais.org

Timbuktu multipurpose telecentre www.tombouctou.org.ml/english/english.htm

Mozambique

The Namaacha and Manhiça telecentres

www.telecentros.org.mz www.ci.uem.mz/telecentros

Senegal

ANAINS: Senegal informatics policy (in French) www.anais.org

Case studies of communal telephones, public kiosks and private telecentres (in French)
www.telecom-plus.sn/observatoire/OBtcp.htm

Senegal Telecom: Publiphonie (in French)

www.telecomplus.sn/services/publiphonie.htm

Senegal: An IDRC case study www.idrc.ca/acacia/engine/eng_6.htm

South Africa

The Distance Education Digital Learning System Project

www.unisa.ac.za www.unisa.ac.za/dept/buo/projects/dedls

Mamelodi telecentre: An IDRC case study www.idrc.ca/acacia/engine/eng_8.htm

Technology Enhanced Learning Initiative of Southern Africa (TELISA)

www.pgw.org/telisa

Universal Service Agency (USA) telecentre project www.usa.org.za

Uganda

IDRC-supported Acacia projects www.acacia.or.ug

The Nabweru telecentre www.idrc.ca/acacia/acacia_e.htm

The Nakaseke multipurpose community telecentre pilot project www.nakaseke.or.ug

TELECENTRES AND ICTS FOR DEVELOPMENT: IN THE AMERICAS

Canada

Community Access Program (CAP)
www.cap.ic.gc.ca/english/hub.htm
www.connect.gc.ca

Latin America and the Caribbean

IDRC's Global Networking Initiative www.idrc.ca/pan
IDRC-supported Latin American Telecentre Research Network (Conectádonos al
Futuro) www.conectando.org.sv
Latin American and Caribbean telecentre initiatives www.idrc.ca/pan/telelink.html

Mexico

Telecentres in Mexico: "Learning the hard way"
www.devmedia.org/documents/robinson.htm

USA

National Telephone Cooperative Association (NTCA): Solutions for serving rural areas
www.ntca.org/intl/solution
Tennessee Valley Authority (TVA): Rural studies www.rural.org

TELECENTRES AND ICTS FOR DEVELOPMENT: IN THE ARAB STATES, ASIA AND THE PACIFIC

Arab States

Telecentres in the Arab States: Case studies and ITU recommendations
www.itu.int/ITU-D-UniversalAccess/seminar/tunis/papers/papers.htm

Australia

Queensland Open Learning Network (QOLN) www.qoln.qld.edu.au
Regional Australia Summit www.dotrs.gov.au/regional/summit
WA Telecentre Network, Western Australia www.telecentres.wa.gov.au

India

Village Knowledge Centres www.mssrf.org.sg

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The Alliance of Small Island States (AOSIS) www.aosis.org

The British Council www.britishcouncil.org

Canadian International Development Agency (CIDA) www.acdi-cida.gc.ca

The Commonwealth of Learning (COL) www.col.org

International Centre for Distance Learning (ICDL) www-icdl.open.ac.uk/icdl

The Small Island Developing States Network (SIDSnet)
www.sidsnet.org/main.html
www.sidsnet.org/sidsdocs/impdocs.html

Swedish International Development Agency (SIDA) www.sida.se



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